FINAL

RESOURCE CONSERVATION AND RECOVERY ACT SOIL SAMPLING SUMMARY REPORT

COLLIS, INC.
CLINTON, IOWA
CONSENT AGREEMENT AND FINAL ORDER (CAFO)
DOCKET NUMBER: RCRA-07-2012-0014

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RCRA

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1.0 INTRODUCTION

Collis Incorporated (Collis)entered into a Consent Agreement and Final Order (CAFO) (Docket Number: Resource Conservation and Recovery Act [RCRA]-07-2012-0014) with the United States Environmental Protection Agency (USEPA) Region 7 on March 27, 2013. The CAFO was in settlement of EPA observations made during a June 2010 inspection of the Collis property, including regarding the exterior storage of totes containing process acids and caustics on concrete pavement areas adjacent to the filter building container storage area (CSA). The CAFO was also in settlement of violations of RCRA observed by USEPA during the September 2007 RCRA inspection. The CAFO states that the USEPA is interested in determining whether any releases occurred from the observed totes in excess of USEPA Industrial Soil Regional Screening Levels (RSLs) for metals.

As a result of the CAFO, Collis has completed a shallow soil investigation. Proposed boring locations identified in the *Pre-Soil Investigation Assessment (April 25, 2013)* for this investigation were based on the 2010 inspection information and developed in conjunction with the USEPA Region 7 project manager. The soil investigation was completed in accordance with the USEPA-approved *Final Sampling Work Plan for Focused Soil Investigation (February 2013)* (Work Plan) and the *Quality Assurance Project Plan (February 2013)* (QAPP); both of which are included as CAFO attachments, and the BB&E-approved *Health and Safety Plan (June 2013)* (HSP). Investigation activities were implemented on July 24, 2013, to assess possible releases from the storage totes into the adjacent soils. BB&E, LLC (BB&E) has prepared this *RCRA Soil Sampling Summary Report* to provide a summary of the findings of the investigation, as required by the Work Plan and to address specific compliance actions within the CAFO.

The Collis property is located at 2005 South 19th Street, Clinton, Clinton County, Iowa (**Figure 1**). Manufacturing has been conducted at the referenced site since the 1900s. Collis is engaged in the manufacturing of interior shelving, baskets, and accessories for major home appliance manufacturers, including General Electric, Whirlpool, Maytag, Amana, and Subzero.

The purpose of this shallow soils investigation is to determine whether any releases occurred from the totes observed during the 2010 USEPA inspection in excess of USEPA Industrial Soil

RSLs for metals. The investigation activities included the advancement of soil borings and collection of soil samples.

2.0 SAMPLING PLAN MODIFICATIONS

Several modifications of the Work Plan and QAPP occurred, as described below, based on field conditions or other best professional judgment:

- Analysis of Chromium VI was also performed by ALS Environmental Laboratory (Holland) on the former CSA shallow soil samples. In the approved Work Plan it states that samples will be analyzed for Chromium, with no distinction of Chromium VI or Chromium III. Since there is no analysis for Chromium III (it's measured as the difference between Chromium VI and total chromium), samples were analyzed for total chromium for which there is no RSL. In the approved QAPP, the RSL listed for chromium without speciation distinction is 5.6 mg/kg. All total chromium results are less than the RSL for Chromium III (150,000 mg/kg), but above the RSL for Chromium VI (5.6 mg/kg). Therefore, it was necessary to analyze the samples for Chromium VI to clarify a chromium speciation inconsistency between the approved Work Plan and the approved QAPP.
- Section 3.1 of the Work Plan states "...an effort to collect background soils that are similar in type to the soils at the former CSA will be made within the shallow soil sampling depth parameters of 0.5 ft to 1.0 ft below ground surface (bgs)". The background shallow soil samples were primarily composed of fine black to dark brown topsoil with minor sand and/or clay constituents. The former CSA shallow soil samples were primarily composed of aggregate materials, sand, fines, and topsoil. The background soils and some soils adjacent to the former CSA were dissimilar at the Work Plan specified depths.
- No soil samples were collected at soil boring locations COL-SB-CSA-9 or COL-SB-CSA-10. Approximately 4 inches to 6 inches below the bottom of the surface concrete a subsurface concrete pad was encountered, resulting in refusal. Soil samples were unable to be collected from the aggregate between the two concrete pavements since only minor amounts of soil materials were observed.
- No soil samples were collected at soil boring locations COL-SB-CSA-11,
 COL-SB-CSA-12, and COL-SB-CSA-13. After coring through approximately 6 inches

of concrete, aggregate was encountered. Soil borings were advanced to approximately 12 inches below the bottom of the concrete, and only aggregate with very little soil was encountered. Soil samples were unable to be collected since only aggregate with minor soil materials were observed.

- An extra soil boring location (COL-SB-CSA-15) was requested by the USEPA representative on-site at the former CSA. This soil boring was advanced and a soil sample was collected for analysis of metals. This extra sample was not contained in the QAPP, Table 1 Summary of Sampling and Analysis Program.
- Per the QAPP, quality assurance samples including matrix spike/matrix spike duplicate (MS/MSD), duplicate, and equipment rinsate blank, were proposed at soil boring location COL-SB-CSA-10. Due to the refusal encountered at this location and lack of soil media available at COL-SB-CSA-11, COL-SB-CSA-12, and COL-SB-CSA-13, the quality assurance samples were collected at soil boring location COL-SB-CSA-15.

3.0 FIELD ACTIVITIES SUMMARY

As shown on **Figures 2 and 3**, a total of twenty-two (22) soil borings were advanced during sampling activities. All twenty-two (22) soil borings were advanced with a manual hand auger. At locations where concrete was present, the concrete was cored prior to advancing the borings.

The USEPA-approved Work Plan outlined an approach of fieldwork progression to identify any areas potentially impacted at the former CSA and also background shallow soil sampling locations. The following sections detail field activities conducted at the former CSA and background areas.

3.1 PRE-SOIL INVESTIGATION ASSESSMENT

Prior to mobilization for soil investigation activities, Collis manufacturing personnel with input from BB&E and USEPA representatives, evaluated the area where the storage totes were located, as referenced in the CAFO. This evaluation included identifying potential migration routes through cracks or relief joints (joints) in the two concrete storage areas or via potential runoff due to the slope of the concrete storage areas, as well as areas where any of the storage totes were located off the concrete at the time of USEPA's 2010 inspection. It was recognized and agreed that a level of field discretion may be needed in determining the exact sampling locations prior to the sampling event.

Representatives of USEPA, Collis, and BB&E contributed in determining the final locations (*Pre-Soil Investigation Assessment – Final*, April 25, 2013). An on-site meeting was held prior to the sampling activities with the USEPA Region 7 representative, Collis, and BB&E on the afternoon of July 23, 2013 to determine and agree upon the final proposed soil boring locations at the former CSA.

3.2 SOIL SAMPLING AND ANALYSIS

Soil borings were advanced as shown on Figure 3, in accordance with the approved Work Plan. Adjacent to the east and west sides of the CSA, concrete was cored prior to advancing all borings in those locations which had a concrete surface (COL-SB-CSA-9, COL-SB-CSA-10, COL-SB-CSA-11, COL-SB-CSA-12, and COL-SB-CSA-13). BB&E personnel performed the hand augering and shallow soil sampling activities.

Soil samples submitted to the laboratory were placed in approved containers, labeled in accordance with the approved QAPP, and placed in a cooler for transport to ALS Laboratories in Holland, Michigan, via FedEx. As prescribed in the QAPP, RCRA metals and mercury were analyzed by ALS Environmental Laboratory using USEPA Method SW6020A and SW7471B, respectively. One deviation from the Work Plan and QAPP included ALS Laboratories analyzing the former CSA shallow soil samples for hexavalent chromium (USEPA Method 7196A) in addition to total chromium.

Borings were advanced to approximately 6 to 12 inches bgs to ensure proper shallow soil collection requirements were followed consistent with the Work Plan. No groundwater was encountered at any of the soil boring locations.

3.2.1 BACKGROUND SHALLOW SOIL SAMPLING

Seven (7) background soil borings were advanced and seven (7) background shallow soil samples were collected. The soils from each boring were logged into a soil boring log sheet (**Appendix A**) and inspected for any visual staining or detectable odors. **Figure 2** illustrates the seven background soil boring locations and the following soil conditions were recorded:

 Soil borings COL-SB-BKGD-01, COL-SB-BKGD-02, and COL-SB-BKGD-03 were advanced south of the manufacturing building, and the soil's primary characteristic was black to dark brown topsoil with trace amounts of clay.

- Soil borings COL-SB-BKGD-04 and COL-SB-BKGD-05 were advanced at the City of Clinton property northeast of the Collis facility, and the soil's primary characteristic was fine black topsoil with trace amounts of black silty clay.
- Soil borings COL-SB-BKGD-06 and COL-SB-BKGD-07 were advanced at the City of Clinton property northwest of the Collis property, and the soil's primary characteristic was fine black topsoil with trace amounts of silty clay and sand.

3.2.2 CONTAINER STORAGE AREA SHALLOW SOIL SAMPLING

Fifteen (15) former CSA soil borings were advanced and ten (10) soil samples were collected. The ten (10) soil samples were only collected at perimeter locations around the CSA concrete pavement areas (COL-SB-CSA-01 through COL-SB-CSA-08, COL-SB-CSA-14, and COL-SB-CSA-15). Four (4) soil borings (COL-SB-CSA-01 through COL-SB-CSA-04) were advanced along the edge of the western area of the concrete pavement, and six (6) soil borings (COL-SB-CSA-05 through COL-SB-CSA-08, COL-SB-CSA-14, and COL-SB-CSA-15) were advanced along the edge of the eastern area of the concrete pavement.

A coring machine with a 6-in diameter bit was utilized to advance into 6-inch thick concrete for COL-SB-CSA-09 through COL-SB-CSA-13. No shallow soil samples were collected from COL-SB-CSA-09 through COL-SB-CSA-13, the five locations beneath the concrete, because of lack of soils encountered (as described below). Soil borings COL-SB-CDA-09 through COL-SB-CSA-11 locations were at the western concrete area, and soil boring COL-SB-CSA-12 and COL-SB-CSA-13 locations were at the eastern concrete area. **Figure 3** illustrates the former CSA soil boring locations.

At COL-SB-CSA-09 and COL-SB-CSA-10, aggregate was encountered beneath the surface concrete. Approximately 4 to 6 inches below the bottom of the surface concrete a subsurface concrete pad was encountered, resulting in refusal. No soil samples were collected at the COL-SB-CSA-09 and COL-SB-CSA-10 locations due to refusal and insufficient soil materials between the two concrete layers. This was an agreed deviation from the Work Plan and QAPP.

After coring through approximately 6 inches of concrete, aggregate was encountered at COL-SB-CSA-11, COL-SB-CSA-12, and COL-SB-CSA-13. Soil borings were advanced to approximately 12 inches below the bottom of the concrete (18 inches bgs). The subsurface materials were mostly aggregate of various sizes with a minor amount of sand and fines.

Samples at these three soil boring locations were unable to be collected since only aggregate with very little soil matrix was encountered.

The USEPA requested an additional soil boring along the eastern concrete area (COL-SB-CSA-15). A soil sample was collected at this location. This was an agreed deviation from the Work Plan and QAPP.

An MS/MSD, duplicate, and equipment rinsate blank, were proposed at soil boring location COL-SB-CSA-10. Due to the refusal encountered at this location and lack of soil media available at COL-SB-CSA-11, COL-SB-CSA-12, and COL-SB-CSA-13, the quality assurance samples were collected at COL-SB-CSA-15.

The following soil conditions were recorded:

- Soil borings COL-SB-CSA-01 through COL-SB-CSA-05 were advanced along the
 perimeter of the concrete pavement at the former CSA, and the soil's primary
 characteristics were a mixture of aggregates (various sizes), sand, and fines.
- Soil borings COL-SB-CSA-06 through COL-SB-CSA-08 and COL-SB-CSA-14 were advanced along the perimeter of the concrete pavement at the former CSA, and the soil's primary characteristic was brown topsoil with minor constituents of aggregate, sand, and fines.
- Soil borings COL-SB-CSA-11 through COL-SB-CSA-13 were cored and the borings were advanced below the concrete pavement. At depths up to 18 inches bgs, aggregate of various sizes with a trace amount of sand and fines were the primary soil types encountered.
- Soil boring COL-SB-CSA-15 was advanced along the perimeter of the concrete at the former CSA, and the soil's primary characteristic was light brown topsoil with minor amounts of sand.

3.3 DECONTAMINATION OF EQUIPMENT AND PERSONNEL

Proper equipment and personnel decontamination procedures were followed in accordance with Section 7.0 of the Work Plan and Section B2.4 of the QAPP during shallow soil sampling activities. As detailed in the QAPP, rinsate blanks (COL-RB-01, COL-RB-02, and COL-RB-03) were also collected and analyzed by ALS Environmental Laboratories. Total chromium was detected above the method detection limit in COL-RB-01 (0.010 mg/L). No other constituents were detected above method detection limits in the three rinsate blank samples.

3.4 INVESTIGATION-DERIVED WASTE MANAGEMENT

All investigation-derived waste (IDW) was handled in accordance with Section 8.0 of the Work Plan. Soil generated from hand augering activities was returned into the soil boring location after sampling activity completion. All personal protective equipment (PPE) and disposable sampling equipment was double-bagged and placed in an on-site municipal waste container to be disposed off-site.

3.5 SITE PHOTOGRAPHS

Photographs were taken during the investigation field activities and are presented in **Appendix B**.

3.6 PERMITS AND UTILITY CLEARANCE

The Iowa utility locator service (Iowa One Call) was contacted prior to conducting all invasive activities during the shallow soil sampling activities.

3.7 HEALTH AND SAFETY

Field activities were performed in accordance with the HASP developed for the shallow soil sampling activities (BB&E, July 2013).

4.0 SHALLOW SOIL SAMPLE RESULTS

Former Container Storage Area – Ten borings were sampled adjacent to the concrete areas at the former CSA, COL-SB-CSA-01 through COL-SB-CSA-08 and COL-SB-CSA-14 and COL-SB-CSA-15. The analytical results collected from investigation activities are discussed below.

Six borings (COL-SB-CSA-01, COL-SB-CSA-05 through COL-SB-CSA-08, and COL-SB-CSA-15) exhibited arsenic concentrations above USEPA industrial soil RSL criteria

of 2.4 milligrams per kilograms (mg/kg). Two borings (COL-SB-CSA-02 and COL-SB-CSA-14) detected arsenic with results above the method detection limit (MDL), but below the industrial soil RSL criteria. Two borings (COL-SB-CSA-03 and COL-SB-CSA-04) had no detections for arsenic.

All ten borings exhibited barium concentrations above the MDL but below the industrial soil RSL criteria of 190,000 mg/kg. Seven borings (COL-SB-CSA-01 through COL-SB-CSA-03, COL-SB-CSA-05 through COL-SB-CSA-08) exhibited cadmium concentrations above the MDL but below the industrial soil RSL criteria of 800 mg/kg. Ten borings exhibited total chromium concentrations, but there are no comparable industrial soil RSL criteria for these analyses; therefore, hexavalent chromium analyses were performed on the former CSA shallow soil samples. Only COL-SB-CSA-01, COL-SB-CSA-02, COL-SB-CSA-03, COL-SB-CSA-05, COL-SB-CSA-07, and COL-SB-CSA-15 detected hexavalent chromium concentrations above the MDL but all were below the industrial soil RSL criteria of 5.6 mg/kg. All ten borings exhibited lead concentrations above the MDL but below the industrial soil RSL criteria of 800 mg/kg. Seven borings exhibited mercury concentrations above the MDL but below the industrial soil RSL criteria of 43 mg/kg. No selenium or silver concentrations were detected in any of the ten borings.

Background Areas – Per the Work Plan, background shallow soil samples were only analyzed for analytes which exceeded industrial soil RSL criteria, in this case arsenic. The arsenic background detections are contained in **Table 1**. The background samples were analyzed to determine an arsenic site-specific background concentration utilizing USEPA ProUCL software. The 95% upper confidence limit (95%UCL) generated was 4.492 mg/kg from the seven background sample's analytical data. The statistical analysis completed by ProUCL is provided in **Appendix D**. Only soil boring COL-SB-CSA-15 had a detection greater than the 95%UCL background concentration (8.1 mg/kg). No additional background shallow soil samples were analyzed since only potential arsenic exceedances were identified from the soil analyses.

The analytical results collected from investigation activities are summarized in **Table 1.** The complete laboratory analytical reports are provided in **Appendix C**.

5.0 CONCLUSION

The field activities completed satisfied the Work Plan, as modified in the field, as adjacent soils to the former CSA were investigated consistent with the CAFO requirements.

No exceedances of USEPA industrial soil RSL criteria (May 2013) for barium, cadmium, hexavalent chromium, total chromium, lead, selenium, silver, and mercury were identified during the shallow soil investigation at the former CSA adjacent to the filter building at the Collis property.

ProUCL software was utilized to generate a shallow soil arsenic site-specific background concentration of 4.492 mg/kg. Arsenic concentrations detected in six (6) of the seven (7) background sampled collected area were less than the site specific background concentration of 4.492 mg/kg. Previously, ProUCL software was also used to generate a shallow soil arsenic site-specific background concentration of 6.816 mg/kg (RCRA Facility Investigation Report, November 2010). Only soil boring COL-SB-CSA-15 had a detection greater than the 95%UCL background concentration (8.1 mg/kg). An Iowa Department of Natural Resources (IDNR) shallow soil (0 - 8 inches bgs) sample state survey illustrated a background arsenic concentration of 10 mg/kg in Clinton, Iowa (The Iowa State-Wide Trace Element Soil Sampling Project: Design and Implementation, June 2010). A statewide survey performed by the Iowa Geological Society determined that the state-specific shallow (less than 12 inches bgs) soil arsenic background concentration was 17 mg/kg (Explanation of Risk Assessments and Development of Risk-Based Standards, May 2013). The arsenic detection at soil boring COL-SB-CSA-15 is slightly higher than site-specific background arsenic concentrations calculated as part of this investigation and the RCRA Facility Investigation, and therefore is considered attributable to background rather than any on-site industrial activities.

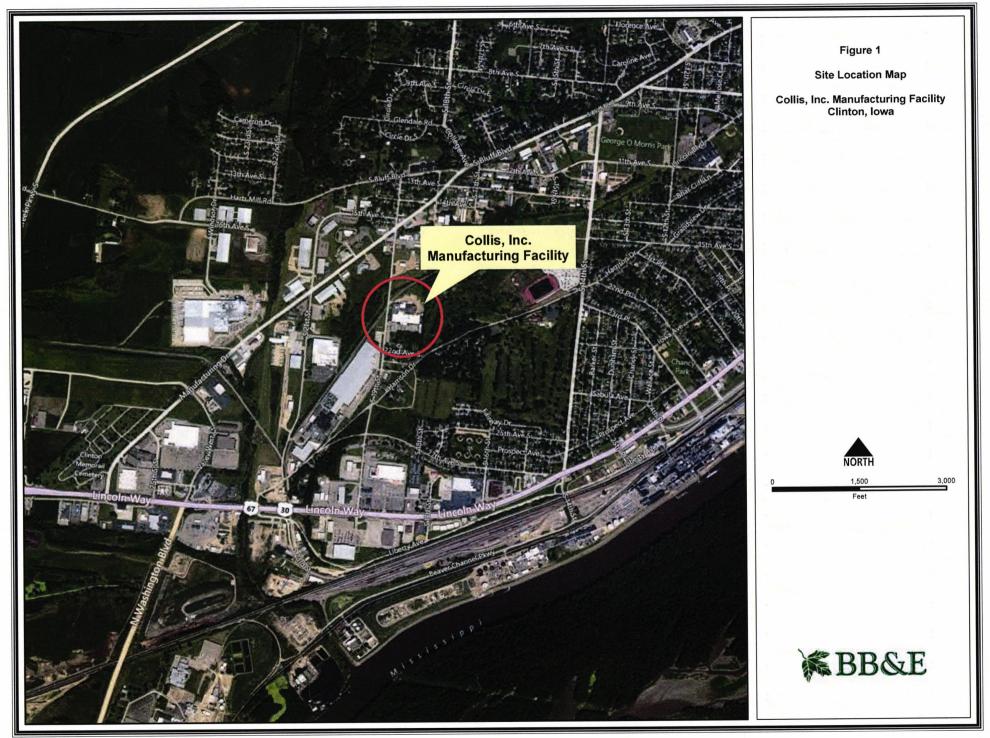
6.0 RECOMMENDATIONS

The purpose of this shallow soil investigation action was to perform an evaluation of soil at the former CSA adjacent to the filter building at the Collis property in satisfaction of the CAFO requirements. During a 2010 USEPA Region 7 RCRA inspection, storage of totes containing process acids and caustics on and near the CSA concrete areas was observed. Based on the results described previously, no additional investigation of the RCRA metals barium, cadmium,

hexavalent chromium, total chromium, lead, selenium, silver, and mercury is required for the purposes of this CAFO. The arsenic detections above USEPA industrial soil RSL criteria are attributable to background, therefore, no additional investigation activities are required for the purposes of this CAFO.

Based on the results of soil sampling, no further action (NFA) is recommended, and Collis requests that USEPA consider the former CSA site for closure and satisfaction of this CAFO requirement.





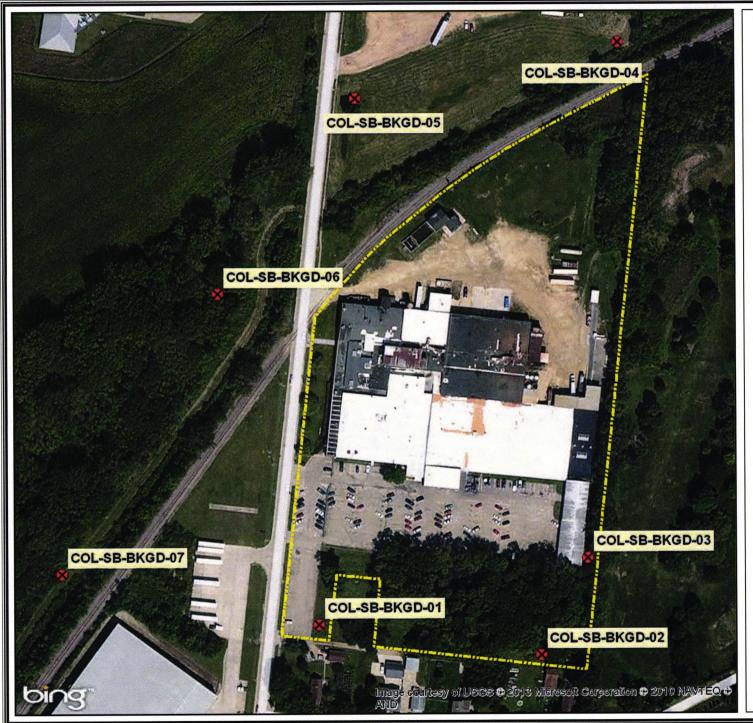


Figure 2

Background Shallow Soil Boring Location Map

Resource Conservation and Recovery Act Soil Sampling Investigation

Collis, Inc. Manufacturing Facility Clinton, Iowa

Legend

Background Soil Borings



Property Boundary



150 30 Feet





JMP - 08/19/2013

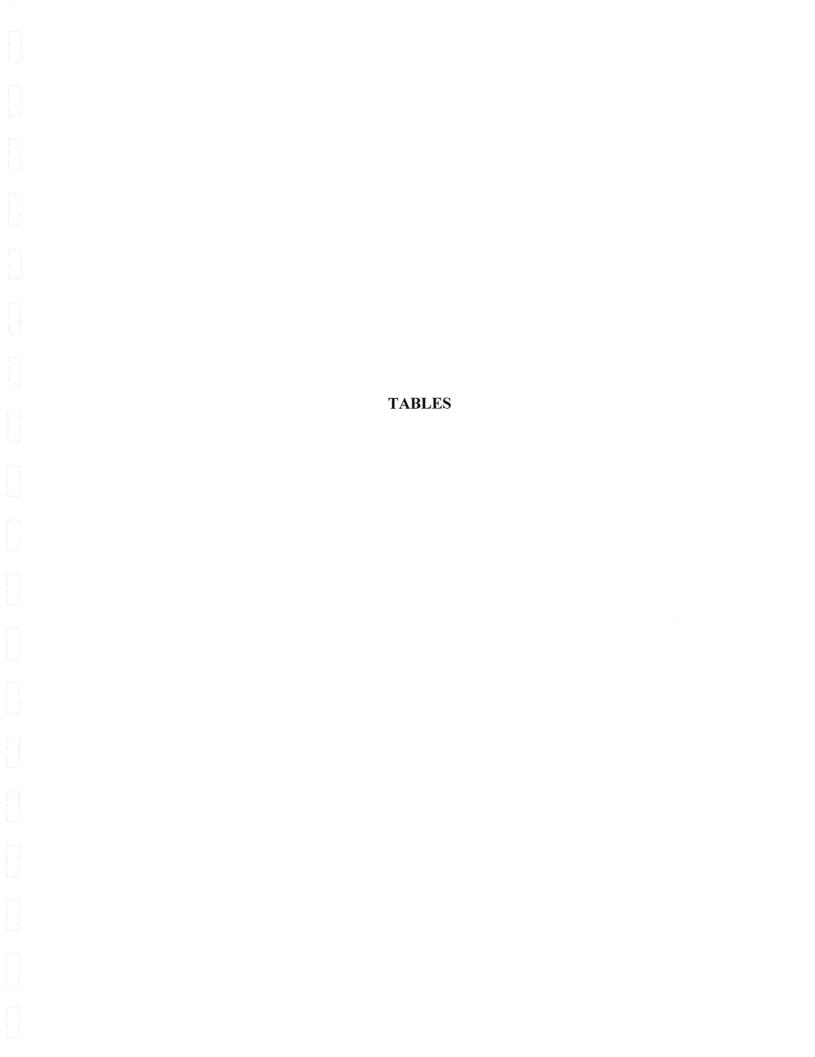


TABLE 1 SHALLOW SOIL SAMPLE SUMMARY TABLE JULY 2013 COLLIS INC. Clinton lowa

Container Storage Area Samples

container otorage riven on		COL-SB-CSA-01	COL-SB-CSA-02	COL-SB-CSA-03	COL-SB-CSA-04	COL-SB-CSA-05	COL-SB-CSA-05	COL-SB-CSA-06	COL-SB-CSA-07	COL-SB-CSA-08	COL-SB-CSA-14	COL-SB-CSA-15	COL-SB-CSA-15 (0.5
Sample ID		(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')-DUP	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	1.0')-DUP
Borehole ID		COL-SB-CSA-01	COL-SB-CSA-03	COL-SB-CSA-03	COL-SB-CSA-04	COL-SB-CSA-05	COL-SB-CSA-05	COL-SB-CSA-06	COL-SB-CSA-07	COL-SB-CSA-08	COL-SB-CSA-14	COL-SB-CSA-15	COL-SB-CSA-15
Date Sampled (mm/dd/yy)		07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13
Date Analyzed (mm/dd/yy)		07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13
Analyte	RSL (mg/kg)						al-						The state of the s
Arsenic	2.40	2.8 J	1.7 J	U	U	3.1 J	2.7 J	3.9 J	4.1 J	3.5 J	2.4 J	U	8.1 J
Barium	190,000	93	59	60	46	120	110	98	140	52	100	150	210
Cadmium (Diet)	800	3.5	2	1.5 J	1.2 J	2	2.6	3.1	2.6	4.1	.65 J	7.2 J	7.1 J
Chromium (VI)	5.60	.47 J	0.38	.21 J	U	0.57	.57 J	U	3.3	U	U	.56 J	U
Chromium (total)	N/A	4500	1300	240	960	1800	1700	4000	7800	3500	96	12000	9300
Lead	800	91	69	42	49	61	83	170	56	110	20	160	330
Selenium	5,100	U	U	U	U	U	.9 J	U	U	.57 J	.54 J	U	Ü
Silver	5,100	.32 J	0.079	0.039	.065 J	.11 J	.11 J	.26 J	.38 J	1.7 J	.11 J	1.8 J	2.0 J
Mercury	43	0.03	0.02	ND	ND	0.03	0.04	0.04	0.03	0.04	ND	0.05	0.04

Background Samples

		COL-SB-BKGD-01	COL-SB-BKGD-02	COL-SB-BKGD-03	COL-SB-BKGD-04	COL-SB-BKGD-05	COL-SB-BKGD-06	COL-SB-BKGD-06	COL-SB-BKGD-07
Sample ID		(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')	(0.5-1.0')-DUP	(0.5-1.0')
Borehole ID		COL-SB-BKGD-01	COL-SB-BKGD-03	COL-SB-BKGD-03	COL-SB-BKGD-04	COL-SB-BKGD-05	COL-SB-BKGD-06	COL-SB-BKGD-06	COL-SB-BKGD-07
Date Sampled (mm/dd/vv)		07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13	07/24/13
Date Analyzed (mm/dd/yv)		07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13	07/26/13
Analyte	RSL (mg/kg)								
Arsenic	2.40	5.2	3.8	2.3	5.0	3.5	3.4	3.9	2.0

Calculated Site Specific Background Concentration Analyte (mg/kg)

	Arsenic	4.492	ProUCL Software Calculation
\equiv			
	The same of the sa		e of industrial soil RSL criteria
250		Soil exceedar	ice of Calculated Site Specific Background Concentration

- Note:

 1. All container storage area soil sampling analytical results are contained in this table.

 2. Only arsenic background soil sampling analytical results are contained in this table since only arsenic detections were identified above industrial soil RSL criteria.

 3. Only arsenic background concentrations were calculated since only arsenic background soil sampling analyses were performed.

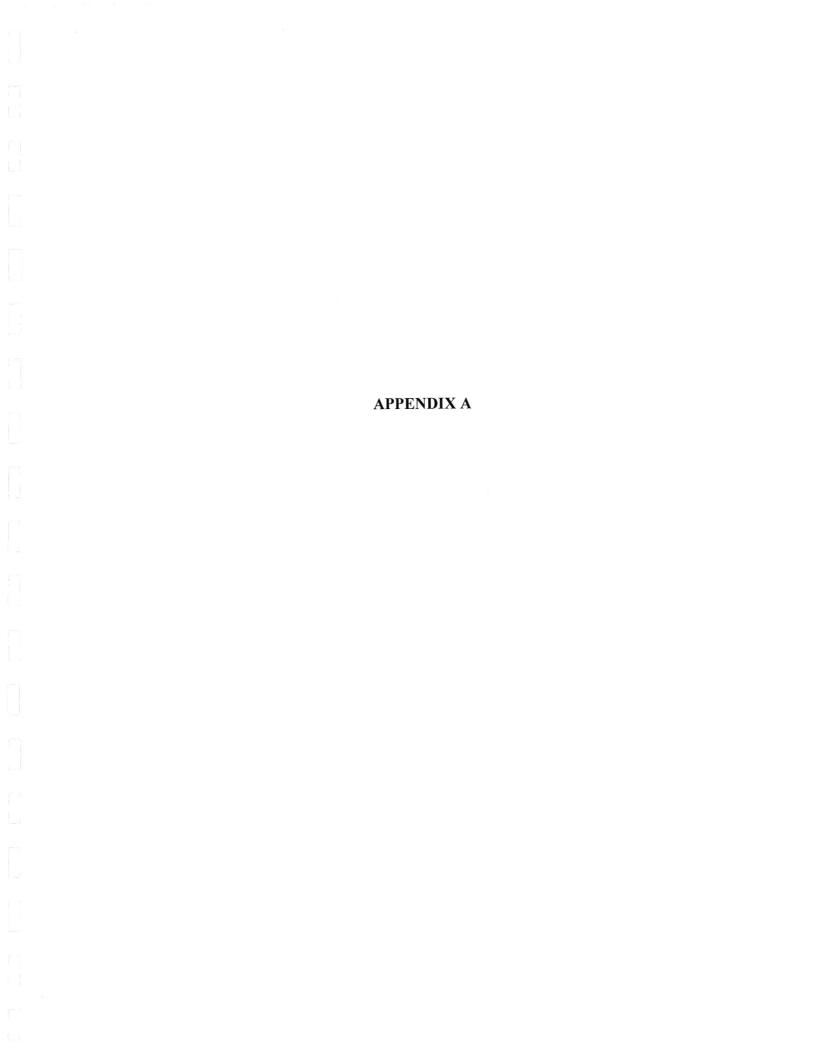
 4. All samples are in units of milligrams per kilograms (mg/kg).

 5. RCRA 8 metals, mercury, and hexavalent chromium analyses were performed in accordance with USEPA Methods 6020A, 7471B, and 7196A, respectively,

 6. (0.5-1.0) indicates the depth of the sample collection feet below ground surface

 7. Abbreviations

- BKGD background
- COL Collis site
- CSA container storage area
 ID identification
- J estimated value
- ND non-detect RSL - Regional Screening Level (USEPA Region IX, updated May 2013)
- SB soil boring
- U -analyte was not detected; associated value is quantitation limit USEPA United States Environmental Protection Agency





& PROFESSI							ation		GD-01(0.5'-1.0')
Project Name RCRA Soil Sam	plina	Project Nu		LTCCODE (IRPIMS)		Site	ID	is, IA	LPRCODE (IRPIMS)
Drilling Company BB&E		Driller J. Ca		Ground Elevation N/A		Tota		lled Depth	
Drilling Equipment Hand Auger	Drilling Man		Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 0650				e Total Depth -1.0' 7/2	Reached 24/13 0710
Type of Sampling Device Stainless Steel	Spoo	n		Water Level (bgs) First N/A		Fir		N/A	
Sample Hammer Type N/A	Driving		Втор	Hydrogeologist N/A		Che	ecked	by/Date N/A	
Location Description (include	sketch in f	ield logbook)						
Depth Interval Recovery Blow Counts				ity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content		Remarks
		n(Root	s) soil (Munsel	I 2/1)		×			e 0.5'-1.0' V encountered



Location COL-SB-BKGD-02(0.5'-1.0') LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Number Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Driller Drilling Company J. Cabra ~1.0' BB&E N/A Date/Time Total Depth Reached Date/Time Drilling Started Borehole Diameter Drilling Method Drilling Equipment 4" 0.5'-1.0' 7/24/13 0730 7/24/13 0725 Hand Auger Manual Water Level (bgs) Type of Sampling Device Final N/A Stainless Steel Spoon First N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Remarks Water Content Description Blow Counts Recovery Interval Sample Depth (Include lithology, grain size, sorting, angularity, Munsell color name & PID notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Vegetation(Roots) Black, Fine Topsoil, trace amounts of tan (Munsell 6/4) clay near bottom of boring Sample 0.5'-1.0' No GW encountered



	OFESSIONALS						cation		GD-03(0.5'-1.0')
Project Name RCRA Soi	il Sampling	Project Nu 0202		LTCCODE (IRPIMS) N/A		Site	e ID	is, IA	LPRCODE (IRPIMS) N/A
Drilling Company BB&E		Driller J. Ca		Ground Elevation N/A		Tota		lled Depth	
Drilling Equipment Hand Aug			Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 0815				ne Total Depth -1.0' 7/2	Reached 24/13 0825
	Steel Spoo	n		Water Level (bgs) First N/A	-	Fir		N/A	
Sample Hammer Type N/A	Driving		Diop	Hydrogeologist N/A		Che	cked	by/Date N/A	
	n (include sketch in fi	ield logbook	ς)		_	_			
Depth Interval Recovery Blow Counts	(Include lit notation,			rity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content		Remarks
		ne Top	soil, trace ar	mounts of boring		X			le 0.5'-1.0' V encountered



Location COL-SB-BKGD-04(0.5'-1.0') LPRCODE (IRPIMS) Site ID LTCCODE (IRPIMS) Project Number Project Name Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Drilling Company Driller ~1.0' BB&E N/A J. Cabra Date/Time Drilling Started Date/Time Total Depth Reached Borehole Diameter Drilling Equipment Drilling Method 0.5'-1.0' 7/24/13 0850 7/24/13 0840 Hand Auger Manual Water Level (bgs) Type of Sampling Device Final N/A First N/A Stainless Steel Spoon Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Description Recovery Interval Sample (Include lithology, grain size, sorting, angularity, Munsell color name &PID notation, minerology, bedding, plasticity, density, consistency, etc., as Vegetation(Roots) Black, Fine Topsoil, slight amount of Sample 0.5'-1.0' black silty-clay (Munsell 2/1) No GW encountered

Borehole ID: Sheet 5 of 22

& PROFESSION									
		1,11					ation OL-		GD-05(0.5'-1.0')
Project Name RCRA Soil Sampl		Project Nur 02028		LTCCODE (IRPIMS) N/A		Site	e ID	is, IA	LPRCODE (IRPIMS) N/A
Drilling Company BB&E		Driller J. Ca		Ground Elevation N/A		Tota		lled Depth	
Drilling Equipment Dr	Orilling N	Method	Borehole Diameter	Date/Time Drilling Started 7/24/13 0900	110	Date	e/Tim	e Total Depth l	Reached 24/13 0907
Type of Sampling Device Stainless Steel S	,			Water Level (bgs) First N/A		Fir		N/A	- 17 10 0001
Sample Hammer	Driving	NI/A	N/A	Hydrogeologist N/A		Che	cked	by/Date N/A	
Location Description (include sket									
				rity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content	11 11	Remarks
	Blac clay (k Tops	soil	d with black		x			e 0.5'-1.0' V encountered



Borehole ID: Sheet $\underline{6}$ of $\underline{22}$

									Loca		SB-BKGD-06(0.5'-1.0')
Project N		Soil	San	pling	Project Num 02028		LTCCODE (IRPIMS) N/A		_	ollis	s, IA LPRCODE (IRPIMS) N/A
Drilling O	Compa				Driller J. Cal	ora	Ground Elevation N/A		_	-1.0	
Drilling Equipment Drilling Method Hand Auger Drilling Method Hand Auger Manual Borehole Diameter 7/24/13 0940											Total Depth Reached 1.0' 7/24/13 0940
Type of S	Sampli inle	ng De	_{vice} Steel	Spoo	on		Water Level (bgs) First N/A		Fin		N/A
Sample H	Iamme N/A			Driving	_{z Wt.} N/A	_{Drop} N/A	Hydrogeologist N/A		Che	cked b	py/Date N/A
	Descri	ption	(include	sketch in f	field logbook)						
Depth	Recovery	Blow Counts		(Include li notation,	ithology, grain minerology, l	Description n size, sorting, angular bedding, plasticity, des applicable)	ity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content	Remarks
0. 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1			Bla	ck, Fi	p floor I	soil	posing materials		x		Sample 0.5'-1.0' Collected DUP and MS/MSD No GW encountered



		- "	0 FE 5 5 1 (DINALS										
										ation	SB-BK0	GD-07(0.5'-1.0')		
Project 1		Soi	l Sam	pling	Project Nur		LTCCODE (IRPIMS) N/A		Site	· ID	s, IA	LPRCODE (IRPIMS) N/A		
Drilling	Compa				Driller		Ground Elevation		Tota	al Dri	lled Depth	11111		
BB			100		J. Ca		N/A		_	~1.		<u> </u>		
Drilling Har			er	Drilling I		Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 1005		Date/Time Total Depth Reached 0.5'-1.0' 7/24/13 101					
Type of Sta				Spoo	n		Water Level (bgs) First N/A		Fir		N/A			
Sample 1		er			NI/A	Drop N/A	Hydrogeologist N/A		_		by/Date			
Type Location		_	(include s	Driving sketch in f	Wt.	Diop	1077				IN/A	4 4 4		
Т	__\	nts			-	Description		Т	Г	tent		Remarks		
Depth	Recovery	Blow Counts					rity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content				
F	F		Veg	etatio	n(Root							0		
L L	E	1	Blad	ck To	osoil									
Ē	E					xed with sar	ndy topsoil		X			e 0.5'-1.0'		
	F		(Mu	insell	4/2)			-			No GV	V encountered		
E	E		- 1								-			
▎╞	F							+						
<u> </u>	E									_				
E	E		7		7									
E	E										-			
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l E	E							+						
ΙĒ	E													
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E	E													
E	E													
E								-	,		, 11			
E	E													

Borehole ID: Sheet 8 of 22

									Loca		SB-CSA	-01(0.5'-1.0')		
Project N		Soil	Sam	pling	Project Nur		LTCCODE (IRPIMS)	**	Site	ID	s, IA	LPRCODE (IRPIMS)		
Drilling C	Compa		Jan	Pillig	Driller J. Ca		Ground Elevation N/A		Tota		led Depth			
BB8 Drilling E	quipm			Drilling	Method	Borehole Diameter	Date/Time Drilling Started		Date/Time Total Depth Reached 0.5'-1.0' 7/24/13 1050					
Han Type of S				Man	iual	4"	7/24/13 1030 Water Level (bgs)		1 0	.5'-	1.0' //2	4/13 1050		
Sta	inle	SS	Steel	Spoo	on		First N/A Hydrogeologist		Fin	_	N/A by/Date			
Sample H Type	N/A			Driving	g Wt. N/A	N/A	N/A		Circ	ckedi	N/A			
Location	Descri	ption	(include s	sketch in f	field logbook)						23		
Depth	Recovery	Blow Counts	((Include li notation,	ithology, grai minerology,	Description n size, sorting, angular bedding, plasticity, de applicable)	rity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content		Remarks		
F	=		Veg	etatio	n (tan	soil)-Monsel	1 7/6							
h.E	Ξ		Ligh	nt bro	wn-Mo	nsell 6/6		4						
	E		Sar	nd an	d fines	with 25% fir	ne gravel		х			e 0.5'-1.0' / encountered		
1.0	E				N.									
ΙĒ	E													
ΙĒ	E									* -	-			
=	E													
ΙE	E							+						
ΙE	E		1											
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ΙE	E					j (2)		-			- 1			
E	F										- L			
E	F				11			+			7			
IE	E													

Borehole ID: Sheet 9 of 22

	_			JIHLS					_			
F	<u>.</u>	1	<u> </u>			5. 2 5.		3		cation OL-		A-02(0.5'-1.0')
Project 1		Soi	il San	npling	Project Nur 02028		LTCCODE (IRPIMS) N/A		Site	e ID	is, IA	LPRCODE (IRPIMS) N/A
Drilling BB8	Compa			11 -	Driller J. Ca		Ground Elevation N/A		Tota		illed Depth	
Drilling I	Equipn		er	Drilling I	Method	Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 1105		Dat	Reached 24/13 1125		
Type of	Sampl	ling D	Device	Spoo	on		Water Level (bgs) First N/A		Fir		N/A	
Sample I		er		Driving	NI/A	A _{Drop} N/A	Hydrogeologist N/A		Che	ecked	by/Date N/A	
Location	Descr	ription	ı (include s	sketch in f	field logbook)						
Depth	Recovery	Blow Counts		notation,	minerology,	bedding, plasticity, des applicable)	rity, Munsell color name & ensity, consistency, etc., as	PID	Sample	Water Content		Remarks
0.5	E				(M	e with sand a lunsell 5/4)						
E	E		Sand	l and		vith 25% gra unsell 5/6)	vel		x	7		e 0.5'-1.0' V encountered
9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				7								
								-				



Location COL-SB-CSA-03(0.5'-1.0') Site ID LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Number Project Name Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Drilling Company ~1.0' J. Cabra N/A BB&E Date/Time Total Depth Reached Date/Time Drilling Started Drilling Equipment Drilling Method Borehole Diameter 0.5'-1.0' 7/24/13 1150 7/24/13 1135 Hand Auger Manual Water Level (bgs) Type of Sampling Device Final N/A Stainless Steel Spoon First N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Description Recovery Sample Interval (Include lithology, grain size, sorting, angularity, Munsell color name &PID notation, minerology, bedding, plasticity, density, consistency, etc., as Large aggregate with sand and fines (Munsell 5/4) Sample 0.5'-1.0' Sand and fines with 40% gravel No GW encountered (Munsell 5/6)



			1 .			-	n		1		oation OL-	SB-CSA	-04(0.5'-1.0')
	ject N		Soi	l Sam	pling	Project Num 02028		LTCCODE (IRPIMS) N/A		Site	e ID	s, IA	LPRCODE (IRPIMS) N/A
Dri		Compa				Driller J. Cal	ora	Ground Elevation N/A			al Dril ~1.(lled Depth	
		Equipr		er	Drilling Man		Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 1250	Date/Time Drilling Started Date/Time Total Depth Reach				
Hand Auger Manual 4" Type of Sampling Device Stainless Steel Spoon								Water Level (bgs) First N/A		Fir		N/A	
San		Iamme N/			Driving	_{wt.} N/A	_{Drop} N/A	Hydrogeologist N/A		Che	ecked	by/Date N/A	
Loc	ation	Desci	ription	(include s	sketch in f	field logbook)							
Depth	Interval	Recovery	Blow Counts					ity, Munsell color name & sity, consistency, etc., as	OIIO	Sample	Water Content		Remarks
0.				,		(Mu	with sand a insell 5/4)	1 1 1 2 2				Carranta	0.51.4.01
	E	Ε		Sand	d and		vith 40% gra unsell 5/6)	avel		X			e 0.5'-1.0' encountered
1.0	E				į.		, , , , , , , , , , , , , , , , , , ,			8			
	E												
1	E						7 20						
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	E												1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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								1. (-			



Location COL-SB-CSA-05(0.5'-1.0') LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Name Project Number Collis, IA N/A N/A RCRA Soil Sampling 02028006 Total Drilled Depth Ground Elevation Driller Drilling Company ~1.0' J. Cabra N/A BB&E Date/Time Total Depth Reached Date/Time Drilling Started Borehole Diameter Drilling Method Drilling Equipment 4" 0.5'-1.0' 7/24/13 1345 7/24/13 1330 Manual Hand Auger Water Level (bgs) Type of Sampling Device Final N/A Stainless Steel Spoon First N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Description Recovery Interval Sample (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) PID Large aggregate with sand and fines (Munsell 5/4) Sample 0.5'-1.0' Sand and fines with 40% aggregate No GW encountered (Munsell 5/4)



& PROFESSIONA										
							ation DL-	SB-CSA	a-06(0.5'-1.0')	
Project Name RCRA Soil Sample		Project Nun		LTCCODE (IRPIMS) N/A			Site ID Collis, IA		LPRCODE (IRPIMS) N/A	
Drilling Company BB&E		Driller J. Cal	ora	Ground Elevation N/A		Total Drilled Depth ~1.0'				
	illing M		Borehole Diameter	Date/Time Drilling Started	-	-		e Total Depth R	eached	
Hand Auger M	7/24/13 1410					4/13 1430				
Type of Sampling Device Stainless Steel Sp	n	Water Level (bgs) First N/A	Final N/A							
Sample Hammer Type N/A	_{vt} N/A	Drop N/A	Hydrogeologist N/A		Checked by/Date N/A					
Location Description (include sketch										
Description The last of the							Water Content		Remarks	
Dark b	, Fin	e Tops	s) soil with 20%	6 aggregate		x			e 0.5'-1.0' / encountered	



Location COL-SB-CSA-07(0.5'-1.0') LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Number Project Name Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Drilling Company BB&E J. Cabra N/A ~1.0' Date/Time Drilling Started Date/Time Total Depth Reached Drilling Equipment Drilling Method Borehole Diameter 4" 0.5'-1.0' 7/24/13 1445 7/24/13 1435 Hand Auger Manual Water Level (bgs) Type of Sampling Device N/A Stainless Steel Spoon First N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Remarks Water Content Description Blow Counts Recovery Sample (Include lithology, grain size, sorting, angularity, Munsell color name & PID notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Vegetation(Roots) Black, Fine Topsoil with sand and fines Dark brown sand (Munsell 5/6) Sample 0.5'-1.0' No GW encountered Brown topsoil with aggregate, sand and fines (Munsell 5/6)



	8	PRO	DFESSIO	NALS										
									Location COL-SB-CSA-08(0.5'-1.0')					
Project Name RCRA Soil Sampling				pling	Project Nun		LTCCODE (IRPIMS) N/A		Site		s, IA	LPRCODE (IRPIMS) N/A		
Drilling Company BB&E				, ,,	Driller		Ground Elevation		Total Drilled Depth					
	_				J. Cal		N/A ~1.0'							
	Drilling Equipment Drilling Hand Auger Man					Borehole Diameter 4"	Date/Time Drilling Started 7/24/13 1455		Date/Time Total Depth Reached 0.5'-1.0' 7/24/13 1510					
Type of	Sampl	ing De	evice	Spoc	on		Water Level (bgs) First N/A		Final N/A					
Stainless Steel Spoon Sample Hammer Type N/A Driving Wt N/A Drop N/A						Hydrogeologist N/A		_	Checked by/Date					
Type Location		_	(include s	Driving sketch in f	111.	Diop	IN/A				N/A			
	Location Description (include sketch in field logbook)													
oth val	very	counts				Description			Sample	Conten	Remarks			
Depth	Recovery	Blow Counts					ize, sorting, angularity, Munsell color name & dding, plasticity, density, consistency, etc., as applicable)			Water Content				
F	E		Veg	etatio	n(Root	s)			-					
h.E	E		Bro	wn to	psoil m	ixed with sa	nd and				1 12			
L.F			agg	regat	e-large	stones		4	X		Sample	0.5'-1.0'		
=	F		at b	oring	bottom	(Munsell 5	(6)		r			encountered		
1.0=	E													
=	F		- 5											
ΙĒ	E													
=	F													
ΙĒ	E													
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Location COL-SB-CSA-09(0.5'-1.0') LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Name Project Number Collis, IA RCRA Soil Sampling 02028006 N/A N/A Drilling Company Ground Elevation Total Drilled Depth BB&E J. Cabra N/A N/A Drilling Equipment Borehole Diameter Date/Time Drilling Started Date/Time Total Depth Reached Drilling Method N/A 4" N/A N/A N/A Water Level (bgs) Type of Sampling Device N/A First N/A N/A Final Checked by/Date Sample Hammer Hydrogeologist Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Description Sample (Include lithology, grain size, sorting, angularity, Munsell color name & PID notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Concrete Aggregate No GW encountered Concrete encountered-refusal-unable to sample



& PROPESSIONAL	•				Loc	ation	+					
							COL-SB-CSA-10(0.5'-1.0')					
Project Name RCRA Soil Samplir	Project Nu 0202		LTCCODE (IRPIMS) N/A			ID	s, IA	LPRCODE (IRPIMS) N/A				
Drilling Company BB&E	Ground Elevation N/A			Total Drilled Depth N/A								
	J. Ca	Borehole Diameter 4"	Date/Time Drilling Started N/A	Date/Time Total Depth Reached N/A								
Type of Sampling Device N/A		1	Water Level (bgs) First N/A	Final N/A								
Sample Hammer Type N/A Driv	Hydrogeologist N/A		Checked by/Date N/A									
Type N/A Driving Wt. N/A Drop N/A N/A N/A Location Description (include sketch in field logbook)												
	rity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content		Remarks						
Aggreg	ate	ment slab	sal-unable to sample				No GV	W encountered				



Location COL-SB-CSA-11(0.5'-1.0') Site ID LPRCODE (IRPIMS) LTCCODE (IRPIMS) Project Number Project Name Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Driller Drilling Company ~1.5' J. Cabra N/A BB&E Date/Time Drilling Started Date/Time Total Depth Reached Drilling Method Borehole Diameter Drilling Equipment 1.5' 7/24/13 1610 7/24/13 1555 Hand Auger Manual Water Level (bgs) Type of Sampling Device Final N/A First N/A N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A Type N/A N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Blow Counts Description Sample Depth (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Concrete No GW encountered Aggregate (fines and sand) unable to remove sufficient soil media from 0.5'-1.0' below bottom of pavement for sample, EPA concurs



	-	2 200							_		
										ation	-SB-CSA-12(0.5'-1.0')
Project N RCF		Soi	l Sam	pling	Project Nu 02028		LTCCODE (IRPIMS) N/A			· ID	is, IA LPRCODE (IRPIMS) N/A
Drilling				Ground Elevation N/A		Tota		lled Depth			
Drilling Equipment Drilling Method Borehole Diameter Hand Auger Manual 4"			Borehole Diameter	Date/Time Drilling Started 7/24/13 1615		Dat	e/Tim	ne Total Depth Reached 7/24/13 1640			
Type of N/A	Sampl	100		11			Water Level (bgs) First N/A		Fir		N/A
Sample Hammer			A _{Drop} N/A	Hydrogeologist N/A		Che	ecked	by/Date N/A			
	Descr	ription	(include	sketch in f	ield logbook						
Description One of the property of the proper					PID	Sample	Water Content	Remarks			
			Aggre u f	nable t	fines an to remov 5'-1.0' be	id sand) ve sufficient so elow bottom of A concurs					No GW encountered



Location COL-SB-CSA-13(0.5'-1.0') LPRCODE (IRPIMS) Site ID LTCCODE (IRPIMS) Project Number Project Name Collis, IA N/A RCRA Soil Sampling 02028006 N/A Total Drilled Depth Ground Elevation Drilling Company Driller ~1.5' N/A BB&E J. Cabra Date/Time Drilling Started Date/Time Total Depth Reached Borehole Diameter Drilling Equipment Drilling Method 4" 1.5' 7/24/13 1720 7/24/13 1655 Hand Auger Manual Water Level (bgs) Type of Sampling Device Final N/A First N/A N/A Checked by/Date Hydrogeologist Sample Hammer Driving Wt. N/A N/A N/A N/A N/A Location Description (include sketch in field logbook) Remarks Water Content Description Interval Sample Depth (Include lithology, grain size, sorting, angularity, Munsell color name & PID notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Concrete Aggregate (fines and sand) No GW encountered unable to remove sufficient soil media from 0.5'-1.0' below bottom of pavement for sample, EPA concurs 1.5



& P	ROFESS	IONALS					_		
								ation	
							_		SB-CSA-14(0.5'-1.0')
Project Name RCRA So	oil Saı	mpling	Project Nur 02028		LTCCODE (IRPIMS) N/A		Site		s, IA LPRCODE (IRPIMS)
Drilling Company			Driller		Ground Elevation				lled Depth
BB&E		Land Heat	J. Ca	ora	N/A		_	~1.(0'
Drilling Equipmen		Drilling		Borehole Diameter	Date/Time Drilling Started				e Total Depth Reached
Hand Au		Man	iual	4"	7/24/13 1515		0	.5'-	<u>-1.0' 7/24/13 1530</u>
Type of Sampling Stainless		el Spoc	on		Water Level (bgs) First N/A		Fin	nal	N/A
Sample Hammer Type N/A		Driving	, Wt N/A	_{Drop} N/A	Hydrogeologist N/A		Che	ecked	by/Date N/A
Location Descripti	tion (includ			Бюр	1 = 1		•		
	nts			Description		Τ	Г	tent	Remarks
Depth Interval Recovery	Blow Counts			bedding, plasticity, der	ity, Munsell color name & nsity, consistency, etc., as	PID	Sample	Water Content	
		getatio	n(Root	applicable)				15	
L F F I	Lig	ht bro	wn san	d with fines	(Munsell 6/6)				
0.5						1			Sample 0.5'-1.0'
E E						X		No GW encountered	
1.0==						1			
I EEI						1			
LEEL									
I EEI						-			
EE									
	-					+	-		
							-		
	-					1			
l E E I									
FEL						1			
I EEI							-		



Location COL-SB-CSA-15(0.5'-1.0') LPRCODE (IRPIMS) LTCCODE (IRPIMS) Site ID Project Number Project Name Collis, IA RCRA Soil Sampling 02028006 N/A N/A Total Drilled Depth Ground Elevation Drilling Company ~1.0' BB&E J. Cabra N/A Date/Time Drilling Started Date/Time Total Depth Reached Drilling Method Borehole Diameter Drilling Equipment 4" 7/24/13 1735 7/24/13 1750 Hand Auger Manual Water Level (bgs) Type of Sampling Device First N/A Final N/A Stainless Steel Spoon Hydrogeologist Checked by/Date Sample Hammer N/A Driving Wt. N/A N/A N/A Location Description (include sketch in field logbook) Water Content Remarks Description Blow Counts Recovery Interval Sample (Include lithology, grain size, sorting, angularity, Munsell color name & PID notation, minerology, bedding, plasticity, density, consistency, etc., as applicable) Vegetation(Roots) Light brown top soil with some sand (Munsell 6/6) Sample 0.5'-1.0' **DUP and MS/MSD** collected No GW encountered

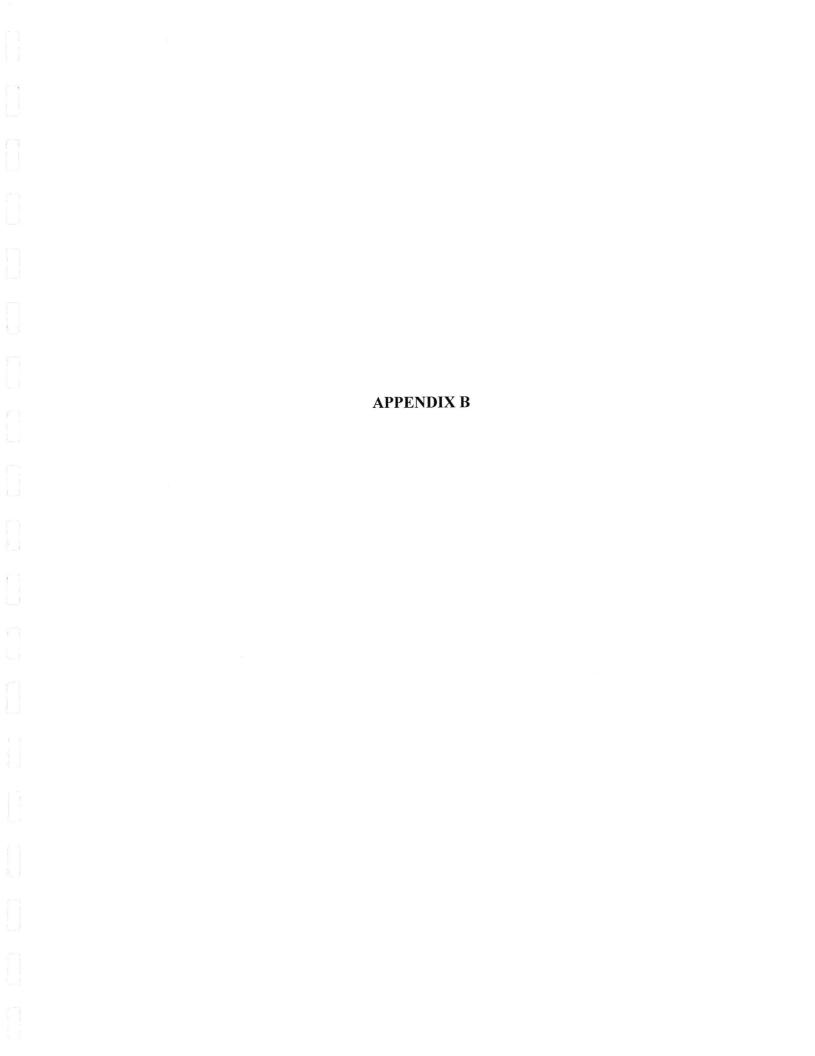




Photo 1: Soil boring COL-SB-CSA-09 refusal

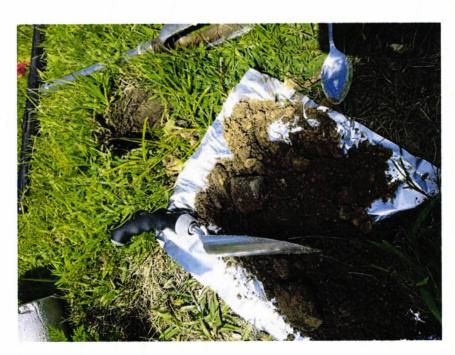


Photo 2: Soil boring COL-SB-CSA-15 constituents (typical soil and aggregate composition along northern concrete pavement perimeter)



Photo 3: Soil boring COL-SB-CSA-06 (typical sand and aggregate composition along southern concrete pavement perimeter)



Photo 4: Shallow soil sampling tools - hand auger, stainless steel trowel, stainless steel spoon



Photo 5: Soil boring COL-SB-CSA-10 refusal



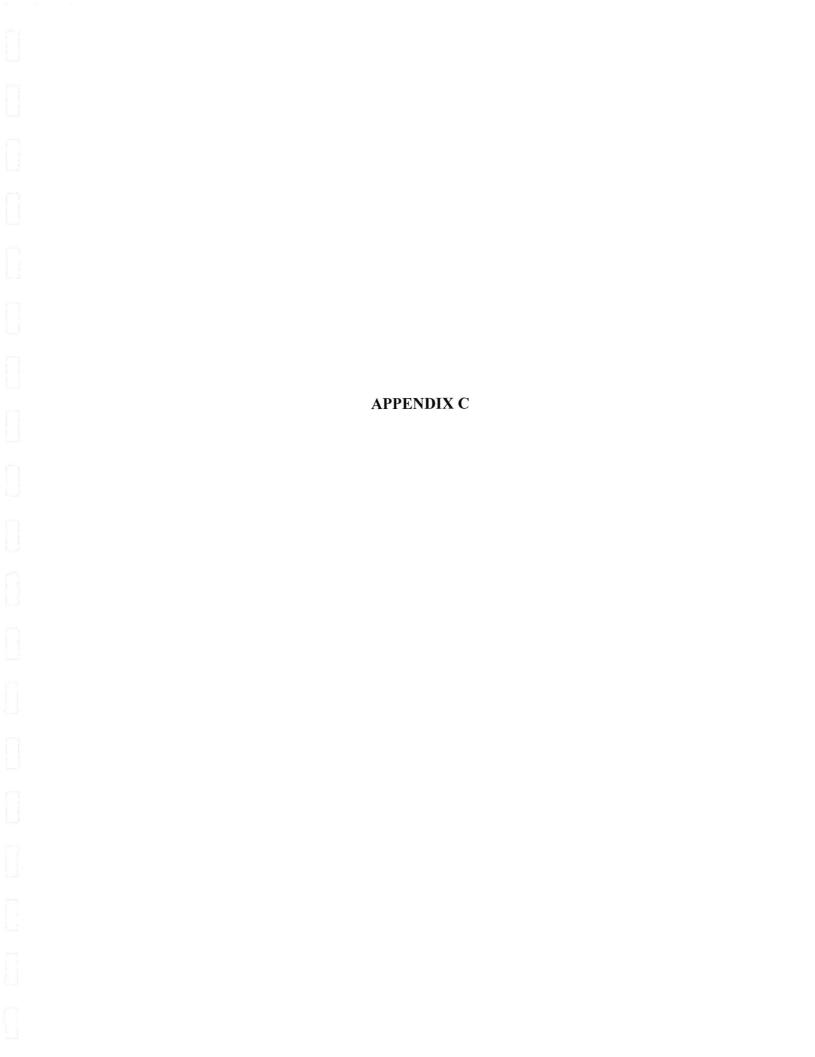
Photo 6: Soil borings COL-SB-CSA-12 and 13 aggregate constituents



Photo 7: Soil boring COL-SB-CSA-11 aggregate constituents



Photo 8: Typical concrete pavement coring along joint





15-Aug-2013

Jason Cabra BB&E, LLC 235 East Main Street Suite 107 Northville, MI 48167

Re: COLLIS Soil Sample

Work Order: 13071003

Dear Jason,

ALS Environmental received 23 samples on 26-Jul-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 73.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Joseph Ribar

Joseph Ribar Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company



Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Work Order:

13071003

Work Order Sample Summary

Lab Samp ID Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	<u>Hold</u>
13071003-01 COL-SB-CSA-01 (0.5'-1.0')	Soil		7/24/2013 10:50	7/26/2013 09:30	
13071003-02 COL-SB-CSA-02 (0.5'-1.0')	Soil		7/24/2013 11:25	7/26/2013 09:30	
13071003-03 COL-SB-CSA-03 (0.5'-1.0')	Soil		7/24/2013 11:50	7/26/2013 09:30	
13071003-04 COL-SB-CSA-04 (0.5'-1.0')	Soil		7/24/2013 13:10	7/26/2013 09:30	
13071003-05 COL-SB-CSA-05 (0.5'-1.0')	Soil		7/24/2013 13:45	7/26/2013 09:30	
13071003-06 COL-SB-CSA-05 (0.5'-1.0')-DUP	Soil		7/24/2013 13:45	7/26/2013 09:30	
13071003-07 COL-SB-CSA-06 (0.5'-1.0')	Soil		7/24/2013 14:30	7/26/2013 09:30	
13071003-08 COL-SB-CSA-07 (0.5'-1.0')	Soil		7/24/2013 14:45	7/26/2013 09:30	
13071003-09 COL-SB-CSA-08 (0.5'-1.0')	Soil		7/24/2013 15:10	7/26/2013 09:30	
13071003-10 COL-SB-CSA-15 (0.5'-1.0')	Soil		7/24/2013 17:50	7/26/2013 09:30	
13071003-11 COL-SB-CSA-15 (0.5'-1.0')-DUP	Soil		7/24/2013 17:50	7/26/2013 09:30	
13071003-12 COL-SB-CSA-14 (0.5'-1.0')	Soil		7/24/2013 15:30	7/26/2013 09:30	
13071003-13 COL-RB-C2	Water		7/24/2013 14:00	7/26/2013 09:30	
13071003-14 COL-RB-C3	Water		7/24/2013 18:15	7/26/2013 09:30	
13071003-15 COL-SB-BKGD-01 (05'-1.0')	Soil		7/24/2013 07:10	7/26/2013 09:30	✓
13071003-16 COL-SB-BKGD-02 (05'-1.0')	Soil		7/24/2013 07:30	7/26/2013 09:30	✓
13071003-17 COL-SB-BKGD-03 (05'-1.0')	Soil		7/24/2013 08:25	7/26/2013 09:30	✓
13071003-18 COL-SB-BKGD-04 (05'-1.0')	Soil		7/24/2013 08:50	7/26/2013 09:30	✓
13071003-19 COL-SB-BKGD-05 (05'-1.0')	Soil		7/24/2013 09:07	7/26/2013 09:30	✓
13071003-20 COL-SB-BKGD-06 (05'-1.0')	Soil		7/24/2013 09:40	7/26/2013 09:30	✓
13071003-21 COL-SB-BKGD-07 (05'-1.0')	Soil		7/24/2013 10:15	7/26/2013 09:30	✓
13071003-22 COL-SB-BKGD-06 (05'-1.0')-DUP	Soil		7/24/2013 09:40	7/26/2013 09:30	✓
13071003-23 COL-RB-01	Water		7/24/2013 10:00	7/26/2013 09:30	

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Work Order:

13071003

Case Narrative

Samples for the above noted Work Order were received on 07/26/2013. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

Batch 50285, Method 6020, Sample 13071003-10AMS: The MS and/or MSD recovery was below the control limit. The corresponding result in the parent sample may be biased low: Selenium

Batch 50285, Method 6020, Sample 13071003-10AMS: The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for these elements: Ba, Cr, Cu, Pb, Zn

Batch 50486, Hexavalent Chromium, Method 7196A, Sample 13071003-10A MS: The MS and MSD recoveries were below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte.

Wet Chemistry:

No deviations or anomalies noted.

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

WorkOrder:

13071003

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
В	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
Н	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
0	Sample amount is > 4 times amount spiked Dual Column results percent difference > 40%
P R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
Α	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III
Units Reported	Description
% of sample	Percent of Sample
as noted	
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-01 (0.5'-1.0')

Collection Date: 7/24/2013 10:50 AM

Work Order: 13071003

Lab ID: 13071003-01

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	A	Prep Date: 8/5/2013	Analyst: ML
Arsenic	2.8	J	5.2	mg/Kg-dry	10	8/6/2013 06:59 PM
Barium	93		5.2	mg/Kg-dry	10	8/6/2013 06:59 PM
Cadmium	3.5		2.1	mg/Kg-dry	10	8/6/2013 06:59 PM
Chromium	4,500		52	mg/Kg-dry	100	8/6/2013 06:53 PM
Lead	91		5.2	mg/Kg-dry	10	8/6/2013 06:59 PM
Selenium	U		5.2	mg/Kg-dry	10	8/6/2013 06:59 PM
Silver	0.32	J	5.2	mg/Kg-dry	10	8/6/2013 06:59 PM
SUBCONTRACTED ANALYSES			SUBCO	NTRACT		Analyst: ALS
Subcontracted Analyses	See report			as noted	1	8/6/2013
CHROMIUM, HEXAVALENT			SW7196	Α	Prep Date: 8/12/2013	Analyst: MB
Chromium, Hexavalent	0.47	J	0.68	mg/Kg-dry	1	8/13/2013 01:30 PM
MOISTURE			A2540 G	ì		Analyst: BD
Moisture	25		0.050	% of samp	le 1	7/30/2013

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

Note:

COL-SB-CSA-02 (0.5'-1.0')

Collection Date: 7/24/2013 11:25 AM

Work Order: 13071003

Lab ID: 13071003-02

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	PΑ	Prep Date: 8/5/2013	Analyst: ML
Arsenic	1.7	J	3.9	mg/Kg-dry	10	8/6/2013 07:06 PM
Barium	59		3.9	mg/Kg-dry	10	8/6/2013 07:06 PM
Cadmium	2.0		1.6	mg/Kg-dry	10	8/6/2013 07:06 PM
Chromium	1,300		39	mg/Kg-dry	100	8/8/2013 06:35 PM
Lead	69		3.9	mg/Kg-dry	10	8/6/2013 07:06 PM
Selenium	U		3.9	mg/Kg-dry	10	8/6/2013 07:06 PM
Silver	0.079	J	3.9	mg/Kg-dry	10	8/6/2013 07:06 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCO	NTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	0.38	J	SW7190 0.55	6A mg/Kg-dry	Prep Date: 8/12/201	3 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	8.3		A2540 (0.050	G % of samp	ole 1	Analyst: BD 7/30/2013

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-03 (0.5'-1.0')

Collection Date: 7/24/2013 11:50 AM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	Α	Prep Date: 8/5/2013	Analyst: ML
Arsenic	U		3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
Barium	60		3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
Cadmium	1.5	J	1.5	mg/Kg-dry	10	8/6/2013 07:12 PM
Chromium	240		3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
Lead	42		3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
Selenium	U		3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
Silver	0.039	J	3.6	mg/Kg-dry	10	8/6/2013 07:12 PM
SUBCONTRACTED ANALYSES			SUBCO	NTRACT		Analyst: ALS
Subcontracted Analyses	See report			as noted	1	8/6/2013
CHROMIUM, HEXAVALENT			SW7196	Α	Prep Date: 8/12/201	3 Analyst: MB
Chromium, Hexavalent	0.21	J	0.55	mg/Kg-dry	1	8/13/2013 01:30 PM
MOISTURE			A2540 G			Analyst: BD
Moisture	7.2		0.050	% of samp	le 1	7/30/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:

BB&E, LLC

Project:

Note:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-04 (0.5'-1.0')

Collection Date: 7/24/2013 01:10 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-04

Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
		SW6020	A	Prep Date: 8/5/2013	Analyst: ML
U		3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
46		3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
1.2	J	1.6	mg/Kg-dry	10	8/6/2013 07:18 PM
960		3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
49		3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
U		3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
0.065	J	3.9	mg/Kg-dry	10	8/6/2013 07:18 PM
		SUBCO	NTRACT		Analyst: ALS
See report			as noted	1	8/6/2013
		SW7196	Α	Prep Date: 8/12/2013	Analyst: MB
U		0.54	mg/Kg-dry	1	8/13/2013 01:30 PM
		A2540 G	;		Analyst: BD
7.7		0.050	% of samp	le 1	7/30/2013
	∪ 46 1.2 960 49 ∪ 0.065 See report	U 46 1.2 J 960 49 U 0.065 J See report	Result Qual Limit SW6020 U 3.9 46 3.9 1.2 J 1.6 960 3.9 49 3.9 U 3.9 0.065 J 3.9 SUBCO	SW6020A SW6020A U 3.9 mg/Kg-dry 46 3.9 mg/Kg-dry 1.2 J 1.6 mg/Kg-dry 960 3.9 mg/Kg-dry 49 3.9 mg/Kg-dry U 3.9 mg/Kg-dry 0.065 J 3.9 mg/Kg-dry SUBCONTRACT as noted SW7196A U 0.54 mg/Kg-dry A2540 G	SW6020A Prep Date: 8/5/2013

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-05 (0.5'-1.0')

Collection Date: 7/24/2013 01:45 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-05

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	Α	Prep Date: 8/5/2013	Analyst: ML
Arsenic	3.1	J	4.3	mg/Kg-dry	10	8/6/2013 07:31 PM
Barium	120		4.3	mg/Kg-dry	10	8/6/2013 07:31 PM
Cadmium	2.0		1.7	mg/Kg-dry	10	8/6/2013 07:31 PM
Chromium	1,800		43	mg/Kg-dry	100	8/6/2013 07:24 PM
Lead	61		4.3	mg/Kg-dry	10	8/6/2013 07:31 PM
Selenium	U		4.3	mg/Kg-dry	10	8/6/2013 07:31 PM
Silver	0.11	J	4.3	mg/Kg-dry	10	8/6/2013 07:31 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCO	NTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	0.57		SW7196 0.57	A mg/Kg-dry	Prep Date: 8/12/201	3 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	11		A2540 G 0.050	% of samp	le 1	Analyst: BD 7/30/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

Note:

COL-SB-CSA-05 (0.5'-1.0')-DUP

Collection Date: 7/24/2013 01:45 PM

Work Order: 13071003

Lab ID: 13071003-06

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW602	0A	Prep Date: 8/5/2013	
Arsenic	2.7	J	3.5	mg/Kg-dry	10	8/6/2013 08:02 PM
Barium	110		3.5	mg/Kg-dry	10	8/6/2013 08:02 PM
Cadmium	2.6		1.4	mg/Kg-dry	10	8/6/2013 08:02 PM
Chromium	1,700		35	mg/Kg-dry	100	8/6/2013 07:56 PM
Lead	83		3.5	mg/Kg-dry	10	8/6/2013 08:02 PM
Selenium	0.90	J	3.5	mg/Kg-dry	10	8/6/2013 08:02 PM
Silver	0.11	J	3.5	mg/Kg-dry	10	8/6/2013 08:02 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCC	ONTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	0.57	J	SW719 0.57	6A mg/Kg-dry	Prep Date: 8/12/201	3 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	11		A2540 0.050	G % of samp	ole 1	Analyst: BD 7/30/2013

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

Note:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-06 (0.5'-1.0')

Collection Date: 7/24/2013 02:30 PM

Work Order: 13071003

Lab ID: 13071003-07

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	A	Prep Date: 8/5/2013	Analyst: ML
Arsenic	3.9	J	4.4	mg/Kg-dry	10	8/6/2013 08:15 PM
Barium	98		4.4	mg/Kg-dry	10	8/6/2013 08:15 PM
Cadmium	3.1		1.7	mg/Kg-dry	10	8/6/2013 08:15 PM
Chromium	4,000		44	mg/Kg-dry	100	8/6/2013 08:09 PM
Lead	170		4.4	mg/Kg-dry	10	8/6/2013 08:15 PM
Selenium	U		4.4	mg/Kg-dry	10	8/6/2013 08:15 PM
Silver	0.26	J	4.4	mg/Kg-dry	10	8/6/2013 08:15 PM
SUBCONTRACTED ANALYSES			SUBCON	NTRACT		Analyst: ALS
Subcontracted Analyses	See report			as noted	1	8/6/2013
CHROMIUM, HEXAVALENT	i i		SW7196	A	Prep Date: 8/12/201	3 Analyst: MB
Chromium, Hexavalent	U		0.58	mg/Kg-dry	1	8/13/2013 01:30 PM
MOISTURE			A2540 G			Analyst: BD
Moisture	12		0.050	% of sampl	le 1	7/30/2013

Client:

BB&E, LLC

Project:

Note:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-07 (0.5'-1.0')

Collection Date: 7/24/2013 02:45 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-08

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	A	Prep Date: 8/5/2013	Analyst: ML
Arsenic	4.1	J	4.7	mg/Kg-dry	10	8/6/2013 08:27 PM
Barium	140		4.7	mg/Kg-dry	10	8/6/2013 08:27 PM
Cadmium	2.6		1.9	mg/Kg-dry	10	8/6/2013 08:27 PM
Chromium	7,800		47	mg/Kg-dry	100	8/6/2013 08:21 PM
Lead	56		4.7	mg/Kg-dry	10	8/6/2013 08:27 PM
Selenium	U		4.7	mg/Kg-dry	10	8/6/2013 08:27 PM
Silver	0.38	J	4.7	mg/Kg-dry	10	8/6/2013 08:27 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCON	NTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	3.3		SW7196	A mg/Kg-dry	Prep Date: 8/12/201	3 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	17		A2540 G 0.050	% of samp	ile 1	Analyst: BD 7/30/2013

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-08 (0.5'-1.0')

Collection Date: 7/24/2013 03:10 PM

Work Order: 13071003

Lab ID: 13071003-09

Analyses	Report Dilution Result Qual Limit Units Factor		Date Analyzed			
METALS BY ICP-MS			SW6020	Α	Prep Date: 8/5/2013	Analyst: ML
Arsenic	3.5	J	4.4	mg/Kg-dry	10	8/6/2013 08:40 PM
Barium	52		4.4	mg/Kg-dry	10	8/6/2013 08:40 PM
Cadmium	4.1		1.8	mg/Kg-dry	10	8/6/2013 08:40 PM
Chromium	3,500		44	mg/Kg-dry	100	8/6/2013 08:33 PM
Lead	110		4.4	mg/Kg-dry	10	8/6/2013 08:40 PM
Selenium	0.57	J	4.4	mg/Kg-dry	10	8/6/2013 08:40 PM
Silver	1.7	J	4.4	mg/Kg-dry	10	8/6/2013 08:40 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCO	NTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	U		SW7196 3.1	A mg/Kg-dry	Prep Date: 8/12/2013	8 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	19		A2540 G 0.050	i % of samp	le 1	Analyst: BD 7/30/2013 04:00 PM

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

Note:

COL-SB-CSA-15 (0.5'-1.0')

Collection Date: 7/24/2013 05:50 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-10

Analyses	Result	December O. I. II. 14 II. 14			Dilution Factor	Date Analyzed		
METALS BY ICP-MS			SW602	DA .	Prep Date: 8/5/2013	Analyst: ML		
Arsenic	U		55	mg/Kg-dry	100	8/6/2013 08:46 PM		
Barium	150		55	mg/Kg-dry	100	8/6/2013 08:46 PM		
Cadmium	7.2	J	22	mg/Kg-dry	100	8/6/2013 08:46 PM		
Chromium	12,000		55	mg/Kg-dry	100	8/6/2013 08:46 PM		
Lead	160		55	mg/Kg-dry	100	8/6/2013 08:46 PM		
Selenium	U		55	mg/Kg-dry	100	8/6/2013 08:46 PM		
Silver	1.8	J	55	mg/Kg-dry	100	8/6/2013 08:46 PM		
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCONTRACT as noted		1	Analyst: ALS 8/6/2013		
CHROMIUM, HEXAVALENT Chromium, Hexavalent	0.56	J	SW719 0.71	6A mg/Kg-dry	Prep Date: 8/12/20 2	3 Analyst: MB 8/13/2013 01:30 PM		
MOISTURE Moisture	28		A2540 (0.050	G % of samp	ole 1	Analyst: BD 7/30/2013		

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

Note:

COL-SB-CSA-15 (0.5'-1.0')-DUP

Collection Date: 7/24/2013 05:50 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-11

Matrix: SOIL

Analyses	Result	Report Dilution Qual Limit Units Factor				Date Analyzed		
METALS BY ICP-MS			SW6020)A	Prep Date: 8/5/2013	Analyst: ML		
Arsenic	8.1	J	44	mg/Kg-dry	100	8/6/2013 10:47 PM		
Barium	210		44	mg/Kg-dry	100	8/6/2013 10:47 PM		
Cadmium	7.1	J	18	mg/Kg-dry	100	8/6/2013 10:47 PM		
Chromium	9,300		44	mg/Kg-dry	100	8/6/2013 10:47 PM		
Lead	330		44	mg/Kg-dry	100	8/6/2013 10:47 PM		
Selenium	U		44	mg/Kg-dry	100	8/6/2013 10:47 PM		
Silver	2.0	J	44	mg/Kg-dry	100	8/6/2013 10:47 PM		
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCO	NTRACT as noted	1	Analyst: ALS 8/6/2013		
CHROMIUM, HEXAVALENT			SW7196	SA .	Prep Date: 8/12/201	3 Analyst: MB		
Chromium, Hexavalent	U		3.3	mg/Kg-dry	5	8/13/2013 01:30 PM		
MOISTURE	"		A2540 G			Analyst: BD		
Moisture	23		0.050	% of samp	le 1	7/30/2013		

See Qualifiers page for a list of qualifiers and their definitions.

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-SB-CSA-14 (0.5'-1.0')

Collection Date: 7/24/2013 03:30 PM

Work Order: 13071003

Lab ID: 13071003-12

Analyses	Result	Qual	1 T' '4 TT '4		Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020	Α	Prep Date: 8/5/2013	Analyst: ML
Arsenic	2.4	J	3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
Barium	100		3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
Cadmium	0.65	J	1.5	mg/Kg-dry	10	8/8/2013 06:41 PM
Chromium	96		3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
Lead	20		3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
Selenium	0.54	J	3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
Silver	0.11	J	3.8	mg/Kg-dry	10	8/8/2013 06:41 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCO	NTRACT as noted	1	Analyst: ALS 8/6/2013
CHROMIUM, HEXAVALENT Chromium, Hexavalent	U		SW7196 0.57	Mg/Kg-dry	Prep Date: 8/12/201 1	3 Analyst: MB 8/13/2013 01:30 PM
MOISTURE Moisture	13		A2540 C 0.050	6 % of samp	ole 1	Analyst: BD 7/30/2013

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-RB-C2

Collection Date: 7/24/2013 02:00 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-13

Matrix: WATER

Analyses	Result	Result Qual		Units	Dilution Factor	Date Analyzed		
METALS BY ICP-MS			SW602	0A	Prep Date: 8/2/2013	Analyst: ML		
Arsenic	U		0.0050	mg/L	1	8/2/2013 06:19 PM		
Barium	0.00012	J	0.0050	mg/L	1	8/2/2013 06:19 PM		
Cadmium	U		0.0020	mg/L	1	8/2/2013 06:19 PM		
Chromium	0.00085	J	0.0050	mg/L	1	8/2/2013 06:19 PM		
Lead	0.000078	J	0.0050	mg/L	1	8/2/2013 06:19 PM		
Selenium	U		0.0050	mg/L	1	8/5/2013 02:28 PM		
Silver	U		0.0050	mg/L	1	8/2/2013 06:19 PM		
SUBCONTRACTED ANALYSES			SUBCC	NTRACT		Analyst: ALS		
Subcontracted Analyses	See report			as noted	1	8/6/2013		

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-RB-C3

Collection Date: 7/24/2013 06:15 PM

Date: 15-Aug-13

Work Order: 13071003

Lab ID: 13071003-14

Matrix: WATER

Analyses	D. H. O. I. T. H. H. H.		Dilution Factor	Date Analyzed		
METALS BY ICP-MS			SW602	0A	Prep Date: 8/2/2013	Analyst: ML
Arsenic	U		0.0050	mg/L	1	8/2/2013 06:24 PM
Barium	0.000063	J	0.0050	mg/L	1	8/2/2013 06:24 PM
Cadmium	U		0.0020	mg/L	1	8/2/2013 06:24 PM
Chromium	0.0010	J	0.0050	mg/L	1	8/2/2013 06:24 PM
Lead	0.000082	J	0.0050	mg/L	1	8/2/2013 06:24 PM
Selenium	U		0.0050	mg/L	1	8/5/2013 02:34 PM
Silver	U		0.0050	mg/L	1	8/2/2013 06:24 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBC	ONTRACT as noted	1	Analyst: ALS 8/6/2013

Date: 15-Aug-13

Client:

BB&E, LLC

Project:

COLLIS Soil Sample

Sample ID:

COL-RB-01

Collection Date: 7/24/2013 10:00 AM

Work Order: 13071003

Lab ID: 13071003-23

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW602	0A	Prep Date:	8/12/2013 Analyst: RH
Arsenic	U		0.0050	mg/L	1	8/12/2013 11:20 PM
Barium	0.00025	J	0.0050	mg/L	1	8/12/2013 11:20 PM
Cadmium	0.000089	J	0.0020	mg/L	1	8/12/2013 11:20 PM
Chromium	0.010		0.0050	mg/L	1	8/12/2013 11:20 PM
Lead	0.0013	J	0.0050	mg/L	1	8/12/2013 11:20 PM
Selenium	U		0.0050	mg/L	1	8/12/2013 11:20 PM
Silver	U		0.0050	mg/L	1	8/12/2013 11:20 PM
SUBCONTRACTED ANALYSES Subcontracted Analyses	See report		SUBCC	NTRACT as noted	1	Analyst: ALS 8/6/2013



August 6, 2013

Analytical Report for Service Request No: K1307716

Joe Ribar ALS - Holland 3352 128th Avenue Holland, MI 49424

RE: 13071003

Dear Joe:

Enclosed are the results of the samples subm itted to our laboratory on August 02, 2013. For your reference, these analyses have been assigned our service request number K1307716.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3275. You may also contact me via Email at Chris.Leaf@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Chris Léaf U Project Manager

CL/mj

Page 1 of 32

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA PHONE +1 360 577 7222 FAX +1 360 636 1068

ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company



Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

LOD Limit of Detection
LOQ Limit of Quantitation

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.2 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- O See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.2 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.2 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	001
	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingW	
Idaho DHW	aterLabs/tabid/1833/Default.aspx	
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPer	
Louisiana DEQ	mitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaborator	
Oregon – DEQ (NELAP)	yAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	_
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.



Subcontractor:

ALS Environmental

1317 South 13th Avenue

TEL: FAX: (360) 577-7222

(360) 636-1068

CHAIN-OF-CUSTODY RECORD

Page 1 of 3

COC ID:

4148 07-Aug-13

С	Customer Information Project Information						Parameter/Method Request for Analysis								
Purchase Order	20-13071003	Projec	t Name	13071003		A Sub	contrac	ed Anal	yses (S	UBCON	TRACT)			
Work Order		Projec	t Number	W 80		В									
Company Name	ALS Group USA, Corp	Bill To	Company	ALS Group I	USA, Corp	С									
Send Report To	Joseph Ribar	Inv At	tn	Accounts P	ayable	D									
Address	3352 128th Avenue	Addre	SS	3352 128th	Avenue	E									
		1				F									
City/State/Zip	Holland, Michigan 49424-9263	City/S	City/State/Zip Holland, Michigan 4942		chigan 49424-9263	G									
Phone	(616) 399-6070	Phone	e (616) 399-6070		070	Н									
Fax	(616) 399-6185	Fax		(616) 399-6	185	1									
eMail Address	joe.ribar@alsglobal.com	eMail	CC			J			,						
ALS Sample ID	Client Sample ID	Matrix	Collectio	n Date 24hr	Bottle	Α	В	С	D	E	∐ F	G	Н	. LI	_ J
13071003-01B	COL-SB-CSA-01 (0.5'-1.0')	Soil	24/Jul/2	013 10:50	(1) 4OZGNEAT	X				process to	and the state of t			1	
13071003-02B	COL-SB-CSA-02 (0.5'-1.0')	Soil	24/Jul/2	013 11:25	(1) 4OZGNEAT	X					1	1			
13071003-03B	COL-SB-CSA-03 (0.5'-1.0')	Soil	24/Jul/2	013 11:50	(1) 4OZGNEAT	X					2-1-1-1-1	1			
13071003-04B	COL-SB-CSA-04 (0.5'-1.0')	Soil	24/Jul/2	013 13:10	(1) 4OZGNEAT	X					-	1	de la la		
13071003-05B	COL-SB-CSA-05 (0.5'-1.0')	Soil	24/Jul/2	013 13:45	(1) 4OZGNEAT	X					1	any and to			
13071003-06B	COL-SB-CSA-05 (0.5'-1.0')- DUP	Soil	24/Jul/2	2013 13:45	(1) 4OZGNEAT	X				1		× 4	1		
13071003-07B	COL-SB-CSA-06 (0.5'-1.0')	Soil	24/Jul/2	2013 14:30	(1) 4OZGNEAT	X						i			
13071003-08B	COL-SB-CSA-07 (0.5'-1.0')	Soil	24/Jul/2	2013 14:45	(1) 4OZGNEAT	X				1					
13071003-09B	COL-SB-CSA-08 (0.5'-1.0')	Soil	24/Jul/2	2013 15:10	(1) 4OZGNEAT	X				1		1	1	-	de es es
13071003-10B	COL-SB-CSA-15 (0.5'-1.0')	Soil	24/Jul/2	2013 17:50	(1) 4OZGNEAT	Χ		5							
13071003-11B	COL-SB-CSA-15 (0.5'-1.0')- DUP	Soil	24/Jul/2	2013 17:50	(1) 4OZGNEAT	X	.l	ļ				.1	1		
13071003-12B	COL-SB-CSA-14 (0.5'-1.0')	Soil	24/Jul/2	2013 15:30	(1) 4OZGNEAT	X			1						
13071003-13B	COL-RB-C2	Soil	24/Jul/2	2013 14:00	(1) 4OZGNEAT	X				2	,				

Comments:

Please analyze the following samples for Mercury by 7471B. Thank you.

7 3110 1550 Received by:

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by:

Date/Time



Subcontractor:

ALS Environmental

1317 South 13th Avenue

TEL:

FAX:

(360) 577-7222

(360) 636-1068

CHAIN-OF-CUSTODY RECORD

Page 2 of 3

Date:

4148

COC ID: Due D

07-Aug-13

Kelso, WA 98626 Acct #: Environmental Salesperson **Brian Root Customer Information** Project Information Parameter/Method Request for Analysis Purchase Order 20-13071003 Project Name 13071003 A Subcontracted Analyses (SUBCONTRACT) Work Order В Project Number Company Name ALS Group USA, Corp Bill To Company C ALS Group USA, Corp Send Report To Joseph Ribar Inv Attn Accounts Payable D E Address Address 3352 128th Avenue 3352 128th Avenue City/State/Zip Holland, Michigan 49424-9263 City/State/Zip Holland, Michigan 49424-9263 G Phone (616) 399-6070 Phone (616) 399-6070 Н Fax (616) 399-6185 Fax (616) 399-6185 eMail Address joe.ribar@alsglobal.com eMail CC ALS Sample ID Client Sample ID Matrix Collection Date 24hr Bottle Α В С D G ¥13071003-14B COL-RB-C3 24/Jul/2013 18:15 Soil (1) 4OZGNEAT X 13071003-15B COL-SB-BKGD-01 (05'-Soil 24/Jul/2013 7:10 (1) 4OZGNEAT X 1.0') 13071003-16B COL-SB-BKGD-02 (05'-Soil 24/Jul/2013 7:30 (1) 4OZGNEAT 1.0') 13071003-17B COL-SB-BKGD-03 (05'-Soil 24/Jul/2013 8:25 (1) 4OZGNEAT 1.0') 13071003-18B COL-SB-BKGD-04 (05'-Soil 24/Jul/2013 8:50 (1) 4OZGNEAT 1.0') 13071003-19B COL-SB-BKGD-05 (05'-Soil 24/Jul/2013 9:07 (1) 4OZGNEAT X 1.0') 13071003-20B COL-SB-BKGD-06 (05'-Soil 24/Jul/2013 9:40 (1) 4OZGNEAT X 1.0')

(1) 40ZGNEAT

(1) 4OZGNEAT

Comments:

13071003-21B

13071003-22B

COL-SB-BKGD-07 (05'-

COL-SB-BKGD-06 (05'-

1.0')-DUP

Please analyze the following samples for Mercury by 7471B. Thank you.

Soil

Soil

Relinquished by:

24/Jul/2013 10:15

24/Jul/2013 9:40

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by

Date/Time

X



Purchase Order

Company Name

Send Report To

City/State/Zip

eMail Address

13071003-23B

ALS Sample ID

Work Order

Address

Phone

Fax

Subcontractor:

ALS Environmental

1317 South 13th Avenue

Kelso, WA 98626

TEL:

(360) 577-7222

FAX: Acct #: (360) 636-1068

Project Information

ALS Group USA, Corp

Accounts Payable

3352 128th Avenue

(616) 399-6070

13071003

Page 3 of 3

A Subcontracted Analyses (SUBCONTRACT)

CHAIN-OF-CUSTODY RECORD

Date:

29-Jul-13

COC ID:

4148

Due D 07-Aug-13

Salesperson Brian Root **Customer Information** 20-13071003 Project Name

Project Number Bill To Company ALS Group USA, Corp Inv Attn

Joseph Ribar 3352 128th Avenue

COL-RB-01

Holland, Michigan 49424-9263 (616) 399-6070

(616) 399-6185 joe.ribar@alsglobal.com

eMail CC Client Sample ID

Matrix Soil

Address

Phone

Fax

City/State/Zip

Collection Date 24hr 24/Jul/2013 10:00

(616) 399-6185

Holland, Michigan 49424-9263

Bottle (1) 4OZGNEAT В

C

D

Ε

G

Н

A

X

В

С

Parameter/Method Request for Analysis

Comments:

Please analyze the following samples for Mercury by 7471B. Thank you.

Relinquished by:

Received by:

Report/QC Level

Std

Relinquished by

Date/Time

Received by:

Date/Time



PC_W

Client/Project:	Collan &	Service	e Request <i>K13</i>	07716	
	pened: § / 2 / 3	, 7	Unloaded:	/2/13 By:_	P.
 Samples were received via? Samples were received in: (circle) Were <u>custody seals</u> on coolers? 	Comment of the second	c Envelope	X Courier H Other	and Delivered	NA
If present, were custody seals in	tact? Y		t, were they signed a		Y N
Raw Corrected Raw (Coppler Jamp Cooler Temp Stoler Temp Blank (SS)	SOLITO COLOR STATE OF THE STATE	rmometer Cooler/C	OCID NA A	Tracking:Number	NA veiled
4 Packing material: Inserts Ba	ggies Bubble Wrap (Gel Packs Wet Ice	Dry Ice Sleeves		. 1,
5. Were custody papers properly fi 6. Did all bottles arrive in good con 7. Were all sample labels complete 8. Did all sample labels and tags ag 9. Were appropriate bottles/contain 10. Were the pH-preserved bottles (11: Were VOA vials received without 12. Was C12/Res negative? Sample ID on Bottle.	ndition (unbroken)? India (i.e analysis, preservation ree with custody papers? hers and volumes received (see SMO GEN SOP) received but headspace? Indicate in	cate in the table below, etc.)? Indicate major discreptor the tests indicated ed at the appropriate parties table below.	pancies in the table ? oH? Indicate in the t	NA	Y N Y N Y N Y N Y N Y N Y N Y N
Notes, Discrepancies, & Resoluti	ons:	pace Broke pH	Reagent Added		itials Time
		,	not s	sulls .	,

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.:

13071003

Service Request: K1307716

Lab Code: Sample Name: K1307615-001D Batch QC K1307615-001S Batch QC K1307716-013 13071003 - 13BK1307716-014 13071003-14BK1307716-023 13071003-23B K1307716-LCS Laboratory Control Sample K1307716-MB Method Blank

Analytical Report

Client:

Matrix:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.:

13071003

Water

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13 Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-13B

Lab Code:

K1307716-013

Units: ug/L (ppb)

Basis: NA

Analyte

Analysis Method

MRL

Date Analyzed

Sample Result

Result

7470A

0.2

08/06/13

ND

Mercury

Notes

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA

Matrix:

13071003

Water

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-14B

Lab Code:

K1307716-014

Units: ug/L (ppb)

Basis: NA

Analyte

Analysis Method

MRL

Date Analyzed

Sample Result

Result

7470A

0.2

08/06/13

Notes

Mercury

ND

Analytical Report

Client:

Matrix:

ALS Environmental - Holland (MI)

Project Name:

NA

13071003 Project No.:

Date Received: 08/02/13

Service Request: K1307716 Date Collected: 07/24/13

Water

Date Extracted: 08/06/13

Total Metals

Sample Name: Lab Code:

13071003-23B

K1307716-023

Units: ug/L (ppb) Basis: NA

Analyte

Analysis Method

MRL

Date Analyzed

Sample Result

Result

7470A

0.2

08/06/13

ND

Notes

Mercury

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

13071003

Matrix:

Water

Service Request: K1307716

Date Collected: NA

Date Received: NA

Date Extracted: 08/06/13

Total Metals

Sample Name:

Method Blank

Lab Code:

K1307716-MB

Units: ug/L (ppb)

Basis: NA

Sample Result MRL Date Analyzed Result Notes **Analysis Method** Analyte 08/06/13 ND 7470A 0.2 Mercury

QA/QC Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA

Matrix:

13071003

Water

Service Request: K1307716

Date Collected: NA Date Received: NA

Date Extracted: 08/06/13

Date Analyzed: 08/06/13

Duplicate Summary Dissolved Metals

Sample Name:

Batch QC

Lab Code:

K1307615-001D

Units: ug/L (ppb)

Basis: NA

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Mercury	7470A	0.2	ND	ND	ND	-	

QA/QC Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA 13071003

Matrix:

Water

Service Request: K1307716

Date Collected: NA Date Received: NA

Date Extracted: 08/06/13

Date Analyzed: 08/06/13

Matrix Spike Summary

Dissolved Metals

Sample Name:

Batch QC

Lab Code:

K1307615-001S

Units: ug/L (ppb)

Basis: NA

CAS Percent Recovery Spiked Acceptance Result Percent Sample Sample Limits Notes Result Result Recovery MRL Spike Level Analyte 80-120 0.9 90 1.00 ND 0.2 Mercury

QA/QC Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No. : Matrix : 13071003

Water

Service Request: K1307716

Date Collected: NA

Date Received: NA

Date Extracted: 08/06/13

Date Analyzed: 08/06/13

Laboratory Control Sample Summary

Total Metals

Sample Name:

Laboratory Control Sample

Lab Code:

K1307716-LCS

Units: ug/L (ppb)

Basis: NA

					CAS Percent Recovery	
Analyte	Analysis Method	True Value	Result	Percent	Acceptance Limits	Result Notes
Mercury	7470A	5.00	5.0	100	83-117	

- Cover Page -INORGANIC ANALYSIS DATA PACKAGE

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.: 13071003

Service Request: K1307716

Sample Name:	Lab Code:
13071003-01B	K1307716-001
13071003-01B	K1307716-001D
13071003-01B	K1307716-001S
13071003-02B	K1307716-002
13071003-03B	K1307716-003
13071003-04B	K1307716-004
13071003-05B	K1307716-005
13071003 - 06B	K1307716-006
13071003 - 07B	K1307716-007
13071003-08B	K1307716-008
13071003-09B	K1307716-009
13071003-10B	K1307716-010
13071003-11B	K1307716-011
13071003-12B	K1307716-012
Method Blank	K1307716-MB
1144110 4 4 111111	

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.:

13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-01B

Lab Code:

K1307716-001

Units: mg/Kg (ppm)

Basis: As Received

Analyte

Analysis Method

MRL

Date Analyzed

Sample Result

Result

Mercury

7471B

08/06/13

0.03

Notes

0.02

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No. : Matrix : 13071003

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-02B

Lab Code:

K1307716-002

Units: mg/Kg (ppm)

Basis: As Received

Analyte Analysis Method MRL Date Analyzed Result Notes

Mercury 7471B 0.02 08/06/13 0.02

Analytical Report

Client:

Matrix:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA

13071003

Soil

Service Request: K1307716

Date Collected: 07/24/13 Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-03B

Lab Code:

K1307716-003

Units: mg/Kg (ppm)

Basis: As Received

Sample Result Analyte **Analysis Method** MRL Date Analyzed Result Notes 7471B Mercury 0.02 08/06/13 ND

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.:

Matrix:

13071003 Soil

Service Request: K1307716 Date Collected: 07/24/13

Date Received: 08/02/13 Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-04B

Lab Code:

K1307716-004

Units: mg/Kg (ppm)

Basis: As Received

Sample Result Result Notes **Analysis Method** MRL **Date Analyzed** Analyte 7471B 0.02 08/06/13 ND Mercury

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA

13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13 Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-05B

Units: mg/Kg (ppm)

Lab Code:

K1307716-005

Basis: As Received

Sample Result Analyte **Analysis Method** MRL Result **Date Analyzed** Notes 7471B Mercury 0.02 08/06/13 0.03

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA 13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13 **Date Received:** 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-06B

Lab Code:

K1307716-006

Units: mg/Kg (ppm)

Basis: As Received

Analyte Analysis Method MRL Date Analyzed Result Notes

Mercury 7471B 0.02 08/06/13 0.04

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13 Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-07B

Lab Code:

K1307716-007

Basis: As Received

Units: mg/Kg (ppm)

Analysis Method

MRL

Date Analyzed

Sample Result

Result

Analyte

7471B

0.02

08/06/13

0.04

Notes

Mercury

Analytical Report

Client: Project Name: ALS Environmental - Holland (MI)

Project No.:

NA

Matrix:

13071003

Soil

Service Request: K1307716

Date Collected: 07/24/13 **Date Received:** 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-08B

Lab Code:

K1307716-008

Units: mg/Kg (ppm)
Basis: As Received

Analyte Analysis Method MRL Date Analyzed Sample Result Notes

Mercury 7471B 0.02 08/06/13 0.03

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-09B

Lab Code:

K1307716-009

Units: mg/Kg (ppm)

Basis: As Received

Analyte

Analysis Method

MRL

Date Analyzed

Sample Result

Result

7471B

0.02

08/06/13

Notes

Mercury

0.04

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No.:

Matrix:

13071003

Soil

Service Request: K1307716

Date Collected: 07/24/13 **Date Received:** 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-10B

Lab Code:

K1307716-010

Units: mg/Kg (ppm)

Basis: As Received

Analyte Analysis Method MRL Date Analyzed Result Notes

Mercury 7471B 0.02 08/06/13 0.05

Analytical Report

Client: Project Name: ALS Environmental - Holland (MI)

Project No.:

13071003

Matrix:

Soil

NA

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-11B

Lab Code:

K1307716-011

Units: mg/Kg (ppm)

Basis: As Received

Sample Result Analyte **Analysis Method** MRL **Date Analyzed** Result Notes Mercury 7471B 0.02 08/06/13 0.04

Analytical Report

Client:

ALS Environmental - Holland (MI)

Project Name:

NA

Project No. : Matrix : 13071003 Soil Service Request: K1307716

Date Collected: 07/24/13 **Date Received:** 08/02/13

Date Extracted: 08/06/13

Total Metals

Sample Name:

13071003-12B

Lab Code:

K1307716-012

Units: mg/Kg (ppm)

Basis: As Received

Analyte Analysis Method MRL Date Analyzed Result Notes

Mercury 7471B 0.02 08/06/13 ND

Analytical Report

Client: Project Name: ALS Environmental - Holland (MI)

Project No.:

NA 13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: NA

Date Received: NA

Date Extracted: 08/06/13

Total Metals

Sample Name:

Method Blank

Units: mg/Kg (ppm)

Lab Code:

K1307716-MB

Basis: As Received

Sample Result Analyte **Analysis Method** MRL Date Analyzed Result Notes Mercury 7471B 0.02 08/06/13 ND

QA/QC Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA

13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13 **Date Received:** 08/02/13 **Date Extracted:** 08/06/13

Date Analyzed: 08/06/13

Duplicate Summary Total Metals

Sample Name:

13071003-01B

Lab Code:

K1307716-001D

Units: mg/Kg (ppm)

Basis: As Received

Analyte	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Mercury	7471B	0.02	0.03	0.03	0.03	<1	

QA/QC Report

Client:

ALS Environmental - Holland (MI)

Project Name: Project No.:

NA 13071003

Matrix:

Soil

Service Request: K1307716

Date Collected: 07/24/13

Date Received: 08/02/13

Date Extracted: 08/06/13 **Date Analyzed:** 08/06/13

Matrix Spike Summary

Total Metals

Sample Name:

13071003-01B

Lab Code:

K1307716-001S

Units: mg/Kg (ppm)

Basis: As Received

Analyte	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
•					·		Notes
Mercury	0.02	0.47	0.03	0.51	102	75-125	

ALS Group USA, Corp

Client:

BB&E, LLC

Work Order:

13071003

Date: 15-Aug-13

QC BATCH REPORT

Project:	COLLIS Soil Sample										
Batch ID: 502	32 Instrument ID ICPMS2		Method	d: SW602	0A						
MBLK	Sample ID: MBLK-50232-50232				U	nits: mg/L		Analy	sis Date: 8/	2/2013 05	:52 PM
Client ID:	Ru	in ID: ICPMS2	_130802A		Sec	qNo: 2401	321	Prep Date: 8/2	2/2013	DF: 1	
				SPK Ref			Control	RPD Ref		RPD	
Analyte	Result	PQL	SPK Val	Value		%REC	Limit	Value	%RPD	Limit	Qual
Arsenic	U	0.0050									
Barium	0.00008285	0.0050									J
Cadmium	U	0.0020									
Chromium	U	0.0050									
Lead	U	0.0050									
Silver	U	0.0050									
MBLK	Sample ID: MBLK-50232-50232				L	Jnits: mg/l	-	Analy	sis Date: 8	/5/2013 02	:12 PM
Client ID:	Ru	ın ID: ICPMS2	_130805A		Se	qNo: 2402	2718	Prep Date: 8/	2/2013	DF: 1	
			00////	SPK Ref Value		0/ DEC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Analyte	Result	PQL	SPK Val	Value		%REC			MILD		Quui
Selenium	U	0.0050									
LCS	Sample ID: LCS-50232-50232				ι	Jnits: mg/ l	L	Analy	sis Date: 8	/2/2013 05	:58 PM
Client ID:	Ru	un ID: ICPMS2	2_130802A		Se	qNo: 240 ′	1322	Prep Date: 8/	2/2013	DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
	0.0963	0.0050	0.1		0	96.3	80-120		0		
Arsenic Barium	0.09686	0.0050	0.1		0	96.9	80-120		0		
Cadmium	0.0953	0.0020	0.1		0	95.3	80-120		0		
Chromium	0.09031	0.0050	0.1		0	90.3	80-120		0		
Lead	0.09483	0.0050	0.1		0	94.8	80-120		0		
Silver	0.09672	0.0050	0.1		0	96.7	80-120		0		
LCS	Sample ID: LCS-50232-50232				ι	Jnits: mg/	L	Anal	ysis Date: 8	3/5/2013 02	2:23 PM
Client ID:		un ID: ICPMS	2_130805A		Se	eqNo: 240	2719	Prep Date: 8/	2/2013	DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

0

0.0050

0.09941

0.1

80-120

99.4

0

Analyte

Selenium

BB&E, LLC

Work Order:

13071003

Project:

COLLIS Soil Sample

Batch ID: 50232 Instrument ID ICPMS2 Method: SW6020A MS Sample ID: 1308011-01BMS Units: mg/L Analysis Date: 8/2/2013 08:39 PM SeqNo: 2402042 Client ID: Run ID: ICPMS2 130802A Prep Date: 8/2/2013 DF: 1 SPK Ref Control RPD Ref **RPD** Value Limit Value Limit **PQL** SPK Val %REC %RPD Qual Analyte Result 0.09592 0.0050 -0.0001857 0 Arsenic 0.1 96.1 75-125 Barium 0.09828 0.0050 0.1 0.00005277 98.2 0 75-125 Cadmium 0.0968 0.0020 0.1 0.00002591 96.8 0 75-125 Chromium 0.08972 0.0050 0.1 0.0001059 89.6 75-125 0 Lead 0.09657 0.0050 0.1 0.00003287 96.5 75-125 0 Silve 0.09641 0.0050 0.1 0.000003879 96.4 75-125 0 MS Sample ID: 1308011-01BMS Units: mg/L Analysis Date: 8/5/2013 03:11 PM Client ID: Run ID: ICPMS2_130805A SeqNo: 2403118 Prep Date: 8/2/2013 DF: 1 RPD SPK Ref Control RPD Ref Value Limit Value Limit Analyte Result PQL SPK Val %REC %RPD Qual Selenium 0.09419 0.0050 0.1 -0.0004074 75-125 0 94.6 MSD Sample ID: 1308011-01BMSD Units: mq/L Analysis Date: 8/2/2013 08:44 PM Client ID: Run ID: ICPMS2_130802A SeqNo: 2402043 Prep Date: 8/2/2013 DF: 1 RPD SPK Ref Control RPD Ref Value Limit Value Limit Result PQL SPK Val %REC %RPD Qual Analyte 0.0936 0.0050 -0.0001857 0.09592 Arsenic 0.1 93.8 75-125 2 45 20 Barium 0.09497 0.0050 0.1 0.00005277 94.9 75-125 0.09828 3 43 20 Cadmium 0.09338 0.0020 0.1 0.00002591 93.4 75-125 0.0968 3.6 20 Chromium 0.0883 0.0050 0.1 0.0001059 88.2 75-125 0.08972 1.6 20 Lead 0.09298 0.0050 0.1 0.00003287 92.9 75-125 0.09657 3.79 20 Silver 0.1 0.000003879 0.09386 0.0050 93.9 75-125 0.09641 2.68 20 MSD Sample ID: 1308011-01BMSD Units: mg/L Analysis Date: 8/5/2013 03:16 PM Client ID: Run ID: ICPMS2 130805A Prep Date: 8/2/2013 SeqNo: 2403119 DF: 1 SPK Ref RPD Control RPD Ref Value Limit Value Limit Analyte Result PQL SPK Val %REC %RPD Qual -0.0004074 Selenium 0.09628 0.0050 0.1 96.7 75-125 0.09419 2.19 20 13071003-13071003-The following samples were analyzed in this batch:

13A

14A

Client: Work Order: BB&E, LLC 13071003

Project:

Note:

COLLIS Soil Sample

Batch ID: 50285	nstrument ID ICPMS1		Method	: SW6020A	\				
MBLK Sample ID: MB	BLK-50285-50285				Units: mg/k	K g	Analysis Date: 8/	6/2013 12	:09 AM
Client ID:		ICPMS1	_130805A	S	eqNo: 2403	730	Prep Date: 8/5/2013	DF: 1	
Sherit ib.							RPD Ref	RPD	
		DOL	CDK Val	SPK Ref Value	%REC	Control Limit	Value %RPD	Limit	Qual
Analyte	Result	PQL	SPK Val		70KEC		701 N D		
Arsenic	U	0.25							
Barium	U	0.25							
Cadmium	U	0.10							
Chromium	U	0.25							
Lead	Ü	0.25							
Selenium	U	0.25							
Silver	U	0.25							
LCS Sample ID: LC	S-50285-50285				Units: mg/l	Kg	Analysis Date: 8	6/2013 06	6:47 PM
Client ID:	Run ID	: ICPMS1	_130806A		SeqNo: 240 4	4750	Prep Date: 8/5/2013	DF: 1	
				SPK Ref		Control	RPD Ref	RPD	
Analyte	Result	PQL	SPK Val	Value	%REC	Limit	Value %RPD	Limit	Qua
Allalyte	A WASHINGTON THE SHOULD BE				SERVICE PROGRESSION STATE	00.400	0		
Arsenic	4.435	0.25	5	0		80-120			
Barium	4.812	0.25	5	0		80-120			
Cadmium	4.766	0.10	5	0		80-120			
Chromium	4.676	0.25	5	0		80-120			
Lead	4.951	0.25	5	0		80-120			
Selenium	4.317	0.25	5	0		80-120			
Silver	4.97	0.25	5	C	99.4	80-120	0		
MS Sample ID: 13	071003-10AMS				Units: mg/	Kg	Analysis Date: 8	/6/2013 0	8:52 PN
Client ID: COL-SB-CSA-15 ((0.5'-1.0') Run IE	: ICPMS	1_130806A		SeqNo: 240	4770	Prep Date: 8/5/2013	DF: 10	00
				SPK Ref		Control	RPD Ref	RPD	
Analyte	Result	PQL	SPK Val	Value	%REC	Limit	Value %RPD	Limit	Qua
	140	39	7.704	109.1	400	75-125	0		so
Barium	14.14	15	7.704	5.152	20 00000000	75-125			J
Cadmium Chromium	8613	39	7.704	8787		75-125			so
Chromium	152.5	39	7.704	112.8		75-125			so
	102.0		7.704	-4.795		75-125			S
Lead	11	.19				75-125			J
Lead Selenium	U 10.59	39 39	7.704	1.307	121				
Lead Selenium	U 10.59	39	7.704	1.307		Silvania voice 1.			
Lead Selenium Silver			7.704		Units: mg/	/Kg	Analysis Date: 8		
Lead Selenium Silver	10.59 3071003-10AMS	39	7.704 1_130806 B			/Kg	Analysis Date: 8 Prep Date: 8/5/2013	DF: 1	
Lead Selenium Silver MS Sample ID: 13	10.59 3071003-10AMS	39		SPK Ref	Units: mg / SeqNo: 240	/ Kg 5471 Contro	Analysis Date: 8 Prep Date: 8/5/2013 RPD Ref	DF: 1	00
Lead Selenium Silver MS Sample ID: 13	10.59 3071003-10AMS	39			Units: mg/	/Kg 95471	Analysis Date: 8 Prep Date: 8/5/2013	DF: 1	

BB&E, LLC

Work Order:

13071003

Project:

COLLIS Soil Sample

Batch ID: 50285 Instrument ID ICPMS1 Method: SW6020A MSD Sample ID: 13071003-10AMSD Units: mg/Kg Analysis Date: 8/6/2013 10:41 PM Client ID: COL-SB-CSA-15 (0.5'-1.0') Run ID: ICPMS1 130806A SeqNo: 2404805 Prep Date: 8/5/2013 DF: 100 RPD SPK Ref RPD Ref Control Limit Value Limit Value Analyte Result PQL SPK Val %REC %RPD Qual Arsenic 11.51 40 8.013 -0.1094 145 75-125 3.553 0 25 JS 138.2 40 8.013 109.1 363 25 SO Barium 75-125 140 1.27 Cadmium 14.87 16 8.013 5.152 121 75-125 14.14 0 25 J Chromium 9391 40 8.013 8787 7530 75-125 8613 8.64 25 SO 160.3 40 8.013 5.03 25 SO Lead 112.8 594 75-125 152.5 1.307 0 J Silver 11.29 40 8.013 125 75-125 10.59 25 MSD Sample ID: 13071003-10AMSD Units: mg/Kg Analysis Date: 8/6/2013 10:41 PM Client ID: COL-SB-CSA-15 (0.5'-1.0') SeqNo: 2405490 Prep Date: 8/5/2013 Run ID: ICPMS1_130806B DF: 100 **RPD** SPK Ref Control **RPD** Ref Limit Value Limit Value SPK Val %REC %RPD Qual Analyte Result PQL 5.432 8.013 75-125 JS Selenium 40 8.417 -37.3-2.596The following samples were analyzed in this batch:

13071003-	13071003-	13071003-	
01A	02A	03A	
13071003-	13071003-	13071003-	
04A	05A	06A	
13071003-	13071003-	13071003-	
07A	08A	09A	
13071003-	13071003-	13071003-	
10A	11A	12A	

BB&E, LLC

Work Order:

13071003

Project:

COLLIS Soil Sample

Batch ID: 504	61 Instrument ID ICPN	IS2		Metho	d: SW602	0A						
MBLK	Sample ID: MBLK-50461-50461					U	Inits: mg/L	• · · · · · · · · · · · · · · · · · · ·	Anal	ysis Date: 8	/12/2013 0	1:04 PM
Client ID:		Run ID:	ICPMS2	_130812A		Sec	qNo: 2410	930	Prep Date: 8/	12/2013	DF: 1	
					SPK Ref			Control	RPD Ref		RPD	
Analyte	Re	esult	PQL	SPK Val	Value		%REC	Limit	Value	%RPD	Limit	Qual
Arsenic		U	0.0050									
Barium		U	0.0050									
Cadmium		U	0.0020									
Chromium		U	0.0050									
Lead	0.0001	062	0.0050									J
Selenium		U	0.0050									
Silver		U	0.0050									
LCS	Sample ID: LCS-50461-50461		# 1			L	Jnits: mg/l	L	Anal	ysis Date: 8	/12/2013 0	1:09 PM
Client ID:		Run ID	: ICPMS2	2_130812A		Se	qNo: 241 0	931	Prep Date: 8	12/2013	DF: 1	
					SPK Ref			Control	RPD Ref		RPD	
Analyte	Re	esult	PQL	SPK Val	Value		%REC	Limit	Value	%RPD	Limit	Qual
Arsenic	0.09	9674	0.0050	0.1		0	96.7	80-120		0		
Barium	0.09	9877	0.0050	0.1		0	98.8	80-120		0		
Cadmium	0.09	9943	0.0020	0.1		0	99.4	80-120		0		
Chromium	0.09	9267	0.0050	0.1		0	92.7	80-120		0		
Lead	0.09	9662	0.0050	0.1		0	96.6	80-120		0		
Selenium	0.09	9594	0.0050	0.1		0	95.9	80-120		0		
Silver	0.09	9935	0.0050	0.1		0	99.4	80-120		0		
MS	Sample ID: 1308307-04CMS					ι	Jnits: mg/	L	Ana	ysis Date: 8	3/12/2013 0	2:31 PM
Client ID:		Run ID	: ICPMS	2_130812A		Se	eqNo: 241 0	0946	Prep Date: 8	/12/2013	DF: 1	
Analyte	R	esult	PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.	1009	0.0050	0.1	0.00026	23	101	75-125		0		
Barium		1264	0.0050	0.1	0.028		98.1	75-125		0		
Cadmium		9833	0.0020	0.1	-0.00058		98.9	75-125		0		
Chromium		9503	0.0050	0.1	0.000028		95	75-125		0		
Lead		9801	0.0050	0.1	-8.611E-		98	75-125		0		
Selenium		9947	0.0050	0.1	0.00030		99.2	75-125		0		
Silver		9855	0.0050	70.0	0.0000077		98.5	75-125		0		

BB&E, LLC

Work Order:

Batch ID: 50461

13071003

Project:

COLLIS Soil Sample

Instrument ID ICPMS2

Method: SW6020A

MSD Sample ID:	1308307-04CMSD				Units: mg/	L	Analysi	is Date: 8/	12/2013 0	1:20 PN
Client ID:	Run	ID: ICPMS	2_130812A		SeqNo: 2410	0933	Prep Date: 8/12	2/2013	DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09919	0.0050	0.1	0.000262	3 98.9	75-125	0.1009	1.71	20	
Barium	0.1306	0.0050	0.1	0.0282	102	75-125	0.1264	3.27	20	
Cadmium	0.1008	0.0020	0.1	-0.000586	7 101	75-125	0.09833	2.48	20	
Chromium	0.09451	0.0050	0.1	0.0000287	5 94.5	75-125	0.09503	0.549	20	
Lead	0.09982	0.0050	0.1	-8.611E-0	6 99.8	75-125	0.09801	1.83	20	
Selenium	0.09724	0.0050	0.1	0.000309	7 96.9	75-125	0.09947	2.27	20	
Silver	0.099	0.0050	0.1	0.00000772	1 99	75-125	0.09855	0.456	20	

The following samples were analyzed in this batch:

13071003-23A

BB&E, LLC

Work Order:

13071003

Project:

Note:

COLLIS Soil Sample

Method: SW7196A Batch ID: 50486 Instrument ID WETCHEM Analysis Date: 8/13/2013 01:30 PM Units: mg/Kg **MBLK** Sample ID: MBLK-50486-50486 Prep Date: 8/12/2013 DF: 1 SeqNo: 2412687 Run ID: WETCHEM_130813I Client ID: RPD Control RPD Ref SPK Ref Limit Value Limit Value %RPD Qual %REC SPK Val PQL Result Analyte U 0.50 Chromium, Hexavalent Analysis Date: 8/13/2013 01:30 PM Units: mg/Kg LCS Sample ID: LCS-50486-50486 DF: 1 SeqNo: 2412688 Prep Date: 8/12/2013 Run ID: WETCHEM_130813I Client ID: RPD RPD Ref SPK Ref Control Limit Limit Value Qual Value %RPD %REC SPK Val Result PQL Analyte 0 91 80-120 0 2 1.82 0.50 Chromium, Hexavalent Analysis Date: 8/13/2013 01:30 PM Sample ID: 13071003-10A MS Units: mg/Kg DF: 1 Prep Date: 8/12/2013 SeqNo: 2412710 Run ID: WETCHEM_130813I Client ID: COL-SB-CSA-15 (0.5'-1.0') RPD RPD Ref Control SPK Ref Limit Limit Value %RPD Qual Value %REC SPK Val Result PQL Analyte S 0 0.4024 75-125 12.6 0.6546 0.50 2.008 Chromium, Hexavalent Analysis Date: 8/13/2013 01:30 PM Units: mg/Kg Sample ID: 13071003-10A MSD MSD DF: 1 Prep Date: 8/12/2013 SeqNo: 2412711 Run ID: WETCHEM_130813I Client ID: COL-SB-CSA-15 (0.5'-1.0') RPD Control RPD Ref SPK Ref Limit Value Limit %RPD Qual Value %REC SPK Val Result PQL Analyte S 20 0.6546 7.5 0.4024 75-125 10.1 2.024 0.6073 0.51 Chromium, Hexavalent 13071003-13071003-The following samples were analyzed in this batch: 13071003-01A 02A 03A 13071003-13071003-13071003-06A 05A 04A 13071003-13071003-13071003-09A 08A 07A 13071003-13071003-13071003-12A 11A 10A

BB&E, LLC

Work Order:

13071003

Project:

COLLIS Soil Sample

Batch ID: R124400	Instrument ID MOIST		Metho	d: A2540	G					
MBLK Sample ID: W	BLKS-R124400				Units: %	of sample	Anal	ysis Date: 7	/30/2013	
Client ID:	Run ID	: MOIST	_130730B		SeqNo: 23	397080	Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%RE	Control C Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.050	Anto-sunder			38 (16 - 33)				
LCS Sample ID: LC	CS-R124400				Units: %	of sample	Anal	ysis Date: 7	/30/2013	
Client ID:	Run ID	: MOIST	_130730B		SeqNo: 23	397079	Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%RE	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100		0 100	99.5-100	.5	0		
DUP Sample ID: 13	8071003-10A DUP				Units: %	of sample	Anal	ysis Date: 7	/30/2013	
Client ID: COL-SB-CSA-15	(0.5'-1.0') Run ID	: MOIST	_130730B		SeqNo: 23	97066	Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%RE	Control C Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	27.02	0.050	0		0 (0-0	28.3	34 4.77	20	
DUP Sample ID: 13	8071017-01A DUP				Units: %	of sample	Analy	ysis Date: 7	/30/2013	
Client ID:	Run ID	: MOIST	_130730B		SeqNo: 23	97077	Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REG	Control C Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	1.37	0.050	0		0 (0-0	1.4	2 3.58	20	
The following samples wer	e analyzed in this batch:	01 13 04 13 07 13 11 13 16	3071003- 1A 3071003- 4A 3071003- 7A 3071003- 1A 3071003- 5A 3071003- 9A	02 13 05 13 08 13 12 13	071003- A 071003- A 071003- A 071003- A 071003-	03 13 06 13 10 13 15 13	071003- A 071003- A 071003- A 071003- A 071003-			

BB&E, LLC

Work Order:

13071003

Project:

COLLIS Soil Sample

Method: A2540 G Instrument ID MOIST Batch ID: R124402 Analysis Date: 7/30/2013 04:00 PM Units: % of sample Sample ID: WBLKS-R124402 MBLK Prep Date: DF: 1 SeqNo: 2397198 Run ID: MOIST 130730A Client ID: RPD SPK Ref Control RPD Ref Limit Value Limit Value %RPD Qual %REC SPK Val PQL Result Analyte 0.04 0.050 Moisture Analysis Date: 7/30/2013 04:00 PM Units: % of sample LCS Sample ID: LCS-R124402 Prep Date: SeqNo: 2397182 Run ID: MOIST 130730A Client ID: RPD RPD Ref Control SPK Ref Limit Value Limit Qual Value %RPD %REC PQL SPK Val Result Analyte 0 100 99.5-100.5 0.050 100 100 Moisture Analysis Date: 7/30/2013 04:00 PM Units: % of sample Sample ID: 13071003-20A DUP DUP Prep Date: **DF: 1** Run ID: MOIST_130730A SeqNo: 2397157 Client ID: COL-SB-BKGD-06 (05'-1.0') RPD RPD Ref Control SPK Ref Limit Value Limit Value %RPD Qual %REC PQL SPK Val Result Analyte 1.4 20 0 17.93 0 0-0 17.68 0.050 0 Moisture Analysis Date: 7/30/2013 04:00 PM Units: % of sample DUP Sample ID: 13071019-04B DUP Prep Date: DF: 1 SeqNo: 2397163 Run ID: MOIST_130730A Client ID: RPD RPD Ref Control SPK Ref Limit Value %RPD Qual Limit Value %REC SPK Val Result PQL Analyte 0 0 0-0 8.59 6.12 20 8.08 0.050 Moisture 13071003-13071003-The following samples were analyzed in this batch:

Chain of Custody Form

Page_

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□ Houston, TX +1 281 530 5656

Spring City, PA +1 610 948 4903

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Fort Collins, CO +1 970 490 1511

Middletown, PA +1 717 944 5541

☐ York, PA +1 717 505 5280

			S:Project N			206	RIBA								IM	3		
Cust		Project In											t for A	nalysi	S	7		
Purchase Order		Project N	lame COLLI	COLLIS SOIL SAMPLE				RCRA METALS (6020A)										
Work Order		Project Nu	nber					MERCURY (7471B)										
Company Name 88+6		Bill To Com	pany B	BB+E				Hexa	VALE	ار ا	CHO	MIUN	(71	9CA)				
Send Report To	Invoice	Attn. JA Sci	JASON CABRA				10/10	(J-/, 1-		<u> </u>			101. 7			-		
Address 235 EAST MAIN STREET				SAME				9							(3)			
		Ado	Iress										*,	7				
City/State/Zip	City/Stat	e/Zip										-						
Phone	P	none										*	,					
Fax 248 489 9646			Fax											_				
e-Mail Address	jcabra@bbande.com	e-Mail Add	ress													_		
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	н	1	J	Hold	
1 COL-5B-CS	SA-01 (0.5'-1.0')	7124113	050 07101C	SOIL	8		\times		×		-1-1-1-1-1-1-1			*				
	CSA-02 (6,5'-1,0')	7/24/13	0730	SOIL	8	i	\searrow		Y									
3V COL-5B-	7/24/13	1150	SCIL	8	1	\times		X						-				
4V COL-5B-	7/24/13	1310	SOIL	8	i	\supset		V										
5V CCL-SB-	7/24/13	1345	SOIL	8	ı	\times		X										
6V CCL 513-1	7/24/13	1345	SOIL	8	1	>		X										
N COL-SB-	7/24/13	1436	SOIL	8	1	\times		X										
8V (CCL-5B-	7/24/13	1445	SCIL	8	_(>	\bigcirc	X					4					
	-CSA-08 (0.5-1.0)	7/24/13	1510	SULL	8	l	\geq	\mathbb{X}	Х					,				
10 COL-SPS		7/24/13		501L	8		\geq	\times		102		v.						
Sampler(s): Please Pri	Shipment Method: Required Turnaround T																	
JASON CABR								2 Wk	Days	<u> </u>	Hour							
Relinquished by: John Celle	7/25/13	Time: Received by:						otes:										
Relinquished by:	Time: Received by (Laboratory):						Cooler Temp.											
Logged by (Laboratory):	FEDGX 7/2613	0930								_	vel II: Standard QC							
roaded by (rapolatoly):	PA 7/210/13	Time: Checked by (Laboratory):						2.4°c	_			III: Std QC + Raw Data IV: SW846 CLP-Like						
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035													CLI	-ike				

Chain of Custody Form

Page 2 of 3

coc id: 01209

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Fort Collins, CO +1 970 490 1511

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York, PA +1 717 505 5280

Citoligitillettra		AL.	S Project Ma	anager:												23
Customer Information		Project In	formation						eter/N			uest	for An	alysis		
Purchase Order	Project Na	me CCLLI	S SOIL	SAMPLE	<u> </u>		CRA 1				(A)					
Work:Order	Project Num	14144	9					24 (=	74711	<u>3) </u>						
Company Name BB+ €	Bill To Compa	any e	BB+€													
Send Report To JASON CABINA .	Invoice A	ttn. JA.	SN CATSI	4	-	D										
235 EAST MINSTREET						E			-							
Address	Addr	>	\			F						*				×
City/State/Zip UCRTHUILLE, MI 48167	City/State/	Zip	SAME				*	-					-			
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e-Mall-Address icabrac bbande.com	e-Mail Addr	ess	1917			J										
No. Sample Description	Date	Time	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	Н	1	J	Hold
10 (OL-5B-CSA-15(0,5'-1,C')	7/24/13	1750	5012	8	1	X	\times	X		:						
COL-5B-CSA-15 (0.5'-1.0') -OUP		1750	SOIL	8	1.	X	\geq	X								
COL-5B-CSA-15/031-1,01) HS/MSD	7124/13	1750	5012	8	1	X	\bowtie									
121V (OL-5B-CSA-14(0.5'-1.0')	7/24/13	1530	SOIL	8	1	$\langle \langle \rangle$	\bowtie	, X								
COL-RB-CZ	7/24/13	1400	WATER	8	L		X					_				
COL-RB-03	7/24/13	1815	WATER	8	1		$ \times $,				-	
7		7				-					-					
8						-		-	_		-					-
9			-		ļ			-								
10 Signature 1 Sig	Shinma	ent Method:	Ren	uired Tu	rnaround	Time:			Other _			Res	ults Du	e Date:		
Sampler(s): Please Print & Sign JASCN: CHBILA June Cubra Relinquished by: Date: 7[25] 13 Relinquished by: Date:		DEX		STD 10 W		∃5 Wk	Days	2 Wk		☐ 24 H	lour					
Relinquished by: Date:	Time: F	Received by:				No	tes:		× ×	,		Francis (
Man Cebra 7/25/13	1300	FCDE	300		W.				7.			. <u></u> telle		,,,,,,,,, , i	e de la companya de l	
		Received by (Lai	poratory):	>		C	oler Ten	np.	Packag			transfers.	")			
FEDEX 7/24/13	0930	Checked by (Lab	oratory):			je 1		Sept 1		1 II: St			Data	+		
Logged by (Laboratory): Date: 7/2/05	1220						246	-		1 IV: S						v
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH		NaHSO4 Y-	Other 8-4	degrees	C 9-50	35		. 4	Othe	er:	T.					
Note: Any changes must be made in writing once samples and	COC Form have be	en submitted t	o ALS Enviro	onmental.				U1		yright 20	011 by A	ALS Gr	oup			

Chain of	Custody	Form
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coc id: 01208

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Holland, MI +1 616 399 6070 Everett, WA +1 425 356 2600 Houston, TX +1 281 530 5656

Salt Lake City, UT +1 801 266 7700

Spring City, PA +1 610 948 4903

Middletown, PA +1 717 944 5541	York, PA
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	omer Information			nformation	1								-	for Ar	nalysis	3	\smile
Purchase Order		Project N	ame				A		24 M				<u>4) </u>	_			
Work Order	4	Project Nur	nber				В	MER	CUR	1 (7	747	13)					
Company Name	BB+€	Bill To Comp	Bill To Company BB+E														
Send Report To	JASON CABRA	Invoice i	Attn. JASc	N CABIU	4		D							-		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Address	235 GAST MAIN STREET	Add	Address														
City/State/Zip	WORTHVILLE, MI, 48167	City/State	/Zip	16	*		G										
	248 489 9636	Pf	ione				н										
Fax	248 489 9646		Fax				1										
e-Mail Address	icabra@bbande.com	e-Mail Add	ress			1	J						•		_		
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	Α	В	С	D	E	F	G	н	1	J	Hold
N COL -SE	3-BKGD-01 (0.5'-1.0')	7/24/13	OFO	SOIL	8	1	>	S					5.0			2	
	3-BKGD-02 (0.5'-1.0')	7/24/13	0730	SOIL	8	1	X	X									\triangleright
V COL-58	3-BKGD-03 (0.5-1.01)	7/24/13	0825	SOIL	8	. (\nearrow										X
1 COL - SP	3-BKGD-04 (6.5-1.0')	7/24/13	6850	SUIL	8	(X	X							5.0		>
VCCL-SB	-BKGD-05 (0.5'-1.0)	7/24/13	0907	SOIL	8	1	\times	X									>
O COL-SB.	- BKGD-06 (0.5'-1.0')	7/24/13	0940	SOIL	8	1	\times	\times									\sim
LV COL-SB.	-BKGD-07 (0.5'-1.0')	7/24/13	1015	SOIL	8	1	\times	\times								9	\times
2 V CCL-5B-	BKGD-06 (0.5-1.0)-DUP	7/24/13	0940	SOIL	8	1.	\times	X									\times
100 COL-5B.	-13166-D-06 (0.5'-1.0)MS/MSD	7/2413	0940	SOIL	8	1	X	X			*						>
COL-RB		7(a4/13	1000	WATER	3	(X	\sim						17			\times
Sampler(s): Please Pr	int & Sign Jisan Celra		ent Method: DEメ		uired Tu	naround Days	Time:] 5 Wk D	Days		Other _ Days	□ 24	Hour	Res	ults Du	Date:		
Relinguished by: Oser Cora	U Date:	Time: 13°C	Received by:		25		Note	es:	×								
Relinquished by:	7/25/13		Received by (Lab	poratory):			-		loc :	and the s	· (C)	- AL D	. pala	Nooning			
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Preservative Key: 1	-HCL 2-HNO3 3-H2SO4 4-NaOH	5-Na2S2O3 6-	NaHSO4 7-	Mer 8-4	degrees	C 9-50	35			Oth	er:						

Joe Ribar

From: Sent: Jason Cabra <jcabra@bbande.com> Friday, August 09, 2013 3:53 PM

To:

Joe Ribar

Cc: Subject: Veronica Allen
Collis SSW Soil Samples Hex Chrome Analysis (Complete list)

Joe,

I received authorization to inform you to please run the hexavalent chromium analysis on the Collis SSW soil samples. If the hexavalent chromium analysis begins on Monday, we will anticipate the report being submitted on August 16 and the additional analyses cost of \$32 per soil sample (12 samples).

The hexavalent chromium analyses should only be performed on the CSA soil samples (previously analyzed for the RCRA 8 Metals) and not the water rinsate blanks, including the following soil samples:

- -COL-SB-CSA-01(0.5'-1.0')
- -COL-SB-CSA-02(0.5'-1.0')
- -COL-SB-CSA-03(0.5'-1.0')
- -COL-SB-CSA-04(0.5'-1.0')
- -COL-SB-CSA-05(0.5'-1.0')
- -COL-SB-CSA-05(0.5'-1.0') DUP
- -COL-SB-CSA-06(0.5'-1.0')
- -COL-SB-CSA-07(0.5'-1.0')
- -COL-SB-CSA-08(0.5'-1.0')
- -COL-SB-CSA-14(0.5'-1.0')
- -COL-SB-CSA-15(0.5'-1.0')
- -COL-SB-CSA-15(0.5'-1.0') DUP

Please keep the background samples on hold until we receive the hexavalent chromium results.

If you have any questions, please contact me.

Respectfully,

Jason Cabra, CHMM | Civil Engineer

BB&E, LLC | Consulting Engineers & Professionals

235 East Main Street, Suite 107 | Northville, MI 48167 Office 248.489.9636 ext 308 | Cell 248-342-2113 | Fax 248.489.9646

www.bbande.com

ALS Group: Click here to report this email as spam.

Sample Receipt Checklist

Client Name: BBE	Date/Time Received: 26-Jul-13 09:30
Work Order: <u>13071003</u>	Received by: AB
Checklist completed by Askley Brand eSignature	26-Jul-13 Reviewed by: Loseph Libar 29-Jul-1 Date Signature Date
Matrices: soil Carrier name: FedEx	
Shipping container/cooler in good condition?	Yes ✓ No Not Present
Custody seals intact on shipping container/cooler?	Yes ✓ No Not Present
Custody seals intact on sample bottles?	Yes ☐ No ☐ Not Present ✔
Chain of custody present?	Yes ✓ No 🗌
Chain of custody signed when relinquished and received?	Yes ✓ No 🗆
Chain of custody agrees with sample labels?	Yes ✓ No 🗆
Samples in proper container/bottle?	Yes ✔ No □
Sample containers intact?	Yes ✔ No □
Sufficient sample volume for indicated test?	Yes ✔ No □
All samples received within holding time?	Yes ✔ No □
Container/Temp Blank temperature in compliance?	Yes ✔ No □
Temperature(s)/Thermometer(s):	2.4C
Cooler(s)/Kit(s):	
Date/Time sample(s) sent to storage:	7/26/2013 2:43:19 PM
Water - VOA vials have zero headspace?	Yes ☐ No VOA vials submitted ✔
Water - pH acceptable upon receipt?	Yes No No N/A
pH adjusted? pH adjusted by:	Yes □ No □ N/A ✔
Login Notes:	
Client Contacted: Date Contact	ed: Person Contacted:
Contacted By: Regarding:	
Comments:	
CorrectiveAction:	
	SPC Page 1 of



20-Aug-2013

Jason Cabra BB&E, LLC 235 East Main Street Suite 107 Northville, MI 48167

Re: COLLIS SSW (02028003)

Work Order: 1308591

Dear Jason,

ALS Environmental received 8 samples on 15-Aug-2013 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 19.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Alex Csaszar

Joseph Ribar Project Manager Certificate No: MN 532786

Certificate No. Min 552760

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Date: 20-Aug-13

Client:

BB&E, LLC

Project:

COLLIS SSW (02028003)

Work Order:

1308591

Work Order Sample Summary

Lab Samp II	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1308591-01	COL-SB-BKGD-01 (0.5'-1.0')	Soil		7/24/2013 07:10	7/26/2013 09:30	
1308591-02	COL-SB-BKGD-02 (0.5'-1.0')	Soil		7/24/2013 07:30	7/26/2013 09:30	
1308591-03	COL-SB-BKGD-03 (0.5'-1.0')	Soil		7/24/2013 08:25	7/26/2013 09:30	
1308591-04	COL-SB-BKGD-04 (0.5'-1.0')	Soil		7/24/2013 08:50	7/26/2013 09:30	
1308591-05	COL-SB-BKGD-05 (0.5'-1.0')	Soil		7/24/2013 09:07	7/26/2013 09:30	
1308591-06	COL-SB-BKGD-06 (0.5'-1.0')	Soil		7/24/2013 09:40	7/26/2013 09:30	
1308591-07	COL-SB-BKGD-07 (0.5'-1.0')	Soil		7/24/2013 10:15	7/26/2013 09:30	
1308591-08	COL-SB-BKGD-06 (0.5'-1.0') DUP	Soil		7/24/2013 09:40	7/26/2013 09:30	

Date: 20-Aug-13

Client:

BB&E, LLC

Project:

COLLIS SSW (02028003)

Milligrams per Kilogram Dry Weight

mg/Kg-dry

WorkOrder:

1308591

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
В	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
Н	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked Dual Column results percent difference > 40%
P	RPD above laboratory control limit
R S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III
Units Reported	Description
% of sample	Percent of Sample
	The state of the s

Date: 20-Aug-13

Client:

BB&E, LLC

Work Order:

1308591

COLLIS SSW (02028003)

Project: Lab ID:

1308591-01

Client Sample ID: COL-SB-BKGD-01 (0.5'-1.0')

Collection Date: 7/24/2013 7:10:00 AM

Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	5.2	0.40	SW6020A 0	Prep Dat mg/Kg-dry	e: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	11	0.050	A2540 G 0	% of samp	e 1	Analyst: BD 7/30/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Date: 20-Aug-13

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

Lab ID:

1308591-02

Client Sample ID: COL-SB-BKGD-02 (0.5'-1.0')

Collection Date: 7/24/2013 7:30:00 AM

Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	3.8	0.45	SW6020A 0	Prep Da mg/Kg-dry	ate: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	12	0.050	A2540 G 0	% of samp	ole 1	Analyst: BD 7/30/2013

Date: 20-Aug-13

Client:

BB&E, LLC

Client Sample ID: COL-SB-BKGD-03 (0.5'-1.0')

Work Order:

1308591

Collection Date: 7/24/2013 8:25:00 AM

Project:

COLLIS SSW (02028003)

Matrix: SOIL

Lab ID:

1308591-03

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	2.3	0.42	SW6020A 0	Prep Da mg/Kg-dr	ate: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	12	0.050	A2540 G 0	% of sam	ole 1	Analyst: BD 7/30/2013

Date: 20-Aug-13

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

Lab ID:

1308591-04

Client Sample ID: COL-SB-BKGD-04 (0.5'-1.0')

Collection Date: 7/24/2013 8:50:00 AM

Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	5.0	0.37	SW6020A 0	Prep Da mg/Kg-dr	ate: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	15	0.050	A2540 G 0	% of sam	ole 1	Analyst: BD 7/30/2013

Date: 20-Aug-13

Client:

BB&E, LLC

Client Sample ID: COL-SB-BKGD-05 (0.5'-1.0')

Work Order:

1308591

Collection Date: 7/24/2013 9:07:00 AM

Project:

COLLIS SSW (02028003)

Matrix: SOIL

Lab ID:

1308591-05

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	3.5	0.46	SW6020A 0	Prep Da mg/Kg-dr	ate: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	18	0.050	A2540 G 0	% of sam	ole 1	Analyst: BD 7/30/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Date: 20-Aug-13

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

Lab ID:

1308591-06

Client Sample ID: COL-SB-BKGD-06 (0.5'-1.0')

Collection Date: 7/24/2013 9:40:00 AM

Matrix: SOIL

Analyses	Result	Report OP Memo 2 Result Limit TDL		Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	3.4	0.41	SW6020A 0	Prep Date mg/Kg-dry	e: 8/16/2013 1	Analyst: ML 8/16/2013
MOISTURE Moisture	18	0.050	A2540 G 0	% of sample	e 1	Analyst: BD 7/30/2013

Date: 20-Aug-13

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

Lab ID:

1308591-07

Client Sample ID: COL-SB-BKGD-07 (0.5'-1.0')

Collection Date: 7/24/2013 10:15:00 AM

Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	2.0	0.38	SW6020A 0	Prep Date mg/Kg-dry	e: 8/16/2013 1	Analyst: ML 8/16/2013
MOISTURE Moisture	8.7	0.050	A2540 G 0	% of sample	1	Analyst: BD 7/30/2013

Note: See Qualifiers page for a list of qualifiers and their definitions.

Date: 20-Aug-13

Client:

Work Order:

BB&E, LLC

1308591

Project:

COLLIS SSW (02028003)

Lab ID:

1308591-08

Client Sample ID: COL-SB-BKGD-06 (0.5'-1.0') D

Collection Date: 7/24/2013 9:40:00 AM

Matrix: SOIL

Analyses	Result	Report Limit	MDEQ OP Memo 2 TDL	Qual Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS Arsenic	3.9	0.49	SW6020A 0	Prep Date mg/Kg-dry	e: 8/16/2013	Analyst: ML 8/16/2013
MOISTURE Moisture	22	0.050	A2540 G 0	% of sample	e 1	Analyst: BD 7/30/2013

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

QC BATCH REPORT

Date: 20-Aug-13

Batch ID: 5	0604	Instrument ID IC	PMS1		Method	d: SW602	20A					
MBLK	Sample II	D: MBLK-50604-506	04				Units: mg/	'Kg	Analy	sis Date: 8	/16/2013 0	3:02 PN
Client ID:			Run	ID: ICPMS1	_130816A		SeqNo: 241	6478	Prep Date: 8/1	6/2013	DF: 1	
Analyte			Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic			ND	0.25		1.8					o .	
LCS	Sample II	D: LCS-50604-50604					Units: mg/	'Kg	Analy	sis Date: 8	/16/2013 0	1:46 PN
Client ID:			Run	ID: ICPMS1	_130816A		SeqNo: 241	6300	Prep Date: 8/1	6/2013	DF: 1	
Analyte			Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic			4.502	0.25	5		0 90	80-120	()		
MS	Sample II	D: 1308557-04BMS					Units: mg/	'Kg	Analy	sis Date: 8	16/2013 0	1:58 PN
Client ID:			Run	ID: ICPMS1	_130816A		SeqNo: 241	6302	Prep Date: 8/1	6/2013	DF: 4	
Analyte			Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic			11.61	1.3	6.605	5.46	S5 93	75-125	()		
MSD	Sample II	D: 1308557-04BMSD					Units: mg/	Kg	Analy	sis Date: 8/	16/2013 0	2:23 PM
Client ID:			Run	ID: ICPMS1	_130816A		SeqNo: 241	6473	Prep Date: 8/1	6/2013	DF: 4	
Analyte			Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic			11.52	1.3	6.702	5.46	35 90.4	75-125	11.61	0.745	25	
The followi	ing samples	were analyzed in th	nis batch	130	08591-01A 08591-04A 08591-07A	13	08591-02A 08591-05A 08591-08A		08591-03A 08591-06A			

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

QC BATCH REPORT

Batch ID: R1	24400 Instrument ID	MOIST		Method	: A2540	G						
MBLK	Sample ID: WBLKS-R12440	00				Units	s: % o	fsample	Analysi	s Date: 7/3	30/2013	
Client ID:		Run ID:	MOIS	T_130730B		SeqNo	o: 239	7080	Prep Date:		DF: 1	
Analyte		Result	PQL	. SPK Val	SPK Ref Value	%	REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		ND	0.050									
LCS	Sample ID: LCS-R124400					Unit	s: % o	f sample	Analysi	s Date: 7/	30/2013	
Client ID:		Run ID:	MOIS	T_130730B		SeqNe	o: 239	7079	Prep Date:		DF: 1	
Analyte		Result	PQL	. SPK Val	SPK Ref Value		REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		100	0.050	100		0	100	99.5-100	.5 0			
DUP	Sample ID: 13071003-10A I	DUP				Unit	s: % o	f sample	Analys	is Date: 7/	30/2013	
Client ID:		Run ID	MOIS	T_130730B		SeqN	o: 239	7066	Prep Date:		DF: 1	
Analyte		Result	PQL	_ SPK Val	SPK Ref Value		6REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		27.02	0.050	0		0	0	0-0	28.34	4.77	20	
DUP	Sample ID: 13071017-01A	DUP				Unit	s: % o	f sample	Analys	is Date: 7/	30/2013	
Client ID:		Run ID	MOIS	T_130730B		SeqN	o: 239	7077	Prep Date:		DF: 1	
Analyte		Result	PQL	_ SPK Val	SPK Ref Value		6REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		1.37	0.050	0		0	0	0-0	1.42	3.58	20	
The followi	ng samples were analyzed ir	n this batch:		1308591-01A 1308591-04A 1308591-08A		308591 308591			808591-03A 808591-07A			

Note:

Client:

BB&E, LLC

Work Order:

1308591

Project:

COLLIS SSW (02028003)

QC BATCH REPORT

Batch ID: R	124402 Instrument ID	MOIST		Metho	d: A2540	G						
MBLK	Sample ID: WBLKS-R1244	02				Units:	% of	sample	Analys	is Date: 7	/30/2013 (4:00 PM
Client ID:		Run I	D: MOIST	_130730A		SeqNo:	2397	198	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%R	EC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		0.04	0.050									J
LCS	Sample ID: LCS-R124402					Units:	% of	sample	Analys	is Date: 7	/30/2013 (04:00 PM
Client ID:		Run I	D: MOIST	_130730A		SeqNo:	2397	182	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%RI	EC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		100	0.050	100		0 10	00 9	99.5-100.	.5 0			
DUP	Sample ID: 13071003-20A	DUP				Units:	% of	sample	Analys	is Date: 7	/30/2013 (4:00 PM
Client ID:		Run I	D: MOIST	_130730A		SeqNo:	2397	157	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%RI	EC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		17.68	0.050	0		0	0	0-0	17.93	1.4	20	
DUP	Sample ID: 13071019-04B	DUP			HERE HAVE ANDRESS.	Units:	% of	sample	Analys	is Date: 7/	/30/2013 0	4:00 PM
Client ID:		Run I	D: MOIST	_130730A		SeqNo:	2397	163	Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%RI	EC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture		8.08	0.050	0		0	0	0-0	8.59	6.12	20	

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(ALS)	
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Page 🖺	of _3_	

COC ID: 01208

\Box	Cir	icinn	ati, (H
_	+ 1	513	733	533

Fort Collins, CO

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□ Houston, TX +1 281 530 5656

Spring City, PA + 1 610 948 4903

Middletown, PA + 1 717 944 5541 York, PA +1 717 505 5280

Enu Work Order #: ALS Project Manager: Project Information Parameter/Method Request for Analysis Customer Information **Project Name** RCRA METALS (602CA) Purchase Order MERCURY (7471B) В Work Order **Project Number** BB+E BB+E Company Name Bill To Company TOTAL ARSENIC JASCN CABRA D Send Report To JASON CABRA Invoice Attn. MOISTURE 235 GAST MAIN STREET Address Address Ġ City/State/Zip NCRTHILLE, M1, 48167 City/State/Zip 248 489 9636 н Phone Phone 248 489 9646 1 Fax e-Mail Address Toabrac blande com e-Mail Address Sample Description # Bottles E G No. Date Time Matrix Pres. Hold 8 COL -5B-BKGD-01 (05-10') 7/24/13 0710 SOLL COI - 5B-BKGO - 02 (0.5'-1.0') 7/24/13 Soil 0730 8 COL-5B-BKGD-03 (0.5-101 7/24/13 0825 SOIL 8 COL - SB-BKGD-04 6.5-1.0' 7/24/13 SUIL 6550 8 7/24/13 0907 COL-5B-BKGD-05 10.5'-1.0" SOIL SOIL COL-SB-BKGD-06 (0.5'-1.0') 7/24/13 0940 7/24/13 COL-5B-BKGD-07 (0.5'-1.0') 1015 SOIL 7/24/13 0940 CCL-5B-BKGD-06 (0.5-10)-DUP 50-16 8 CCL-5B-BICGD-06 (0.5-10)M5/M5D 7/24/13 Soll 8 0940 7(24/13 WATER 3 COL-RB-01 1000 Sampler(s): Please Print & Sign **Shipment Method:** Required Turnaround Time: Results Due Date: Other esen Edra FEDEX STD 10 Wk Days. ☐ 5 Wk Davs 2 Wk Davs 24 Hour JASON CABILA Received by: Notes: Time: Hospi Lara 1390 7/25/13 Relinguished by: Time: QC Package: (Check Box Below) Cooler Temp. 0930 Level II: Standard OC Checked by (Laboratory): Logged by (Laboratory): Level III: Std QC + Raw Data 24% Level IV: SW846 CLP-Like 7-Other 5-Na2S2O3 6-NaHSO4 8-4 degrees C 9-5035 Other:

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Chain of Custody Form

-	. 2	
Page	I of J	

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+1 513 733 5336

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York, PA +1 717 505 5280

cocîp:01205 Environmental ALS Project Manager: JOE RIBAR Work Order #: **Customer Information** Project Information Parameter/Method Request for Analysis Purchase Order Project Name COLLIS SOIL SAMPLE RCRA METALS (6020A) Work Order Project Number В MERCURY (7471B) BB+E Company Name Bill To Company BB+E С 719 CA HEXOVALENT CHROMIUM icabrae bbande.com Send Report To JASON CABRA D Invoice Attn 235 EAST MAIN STREET E SAME Address Address F City/State/Zip NORTHUILLE MI 48167 G City/State/Zip Phone 248 489 9636 н Phone Fax 248 489 9646 Fax e-Mail Address 10ahra @ bhande.com e-Mail Address No. Sample Description: Date Time Matrix Pres. # Bottles C G Hold: 8 COL-SB-CSA-OI (0,5'-1,0' 7/24/13 07101C SOIL X COL-SB-CSA-OR (0.5'-1,0' 7/24/13 ષ્ટ SOIL 1150 COL-SB-CSA-03(0.5-1.0) 7/24/13 8 SCIL COL-5B-CSA-04(0,5)-1.05 7/24/13 1310 8 SCIL COL-SB-CSA-05 (0.5'-1.0' 1345 5V 7/24/13 8 SUIL rol-5B-CSA-05(0,5'-1,0')-DUP 7/24/13 8 1345 SCIL 10L-SB-CSA-06 (0,5'-1.6 7/24/13 8 SUIL 1436 COL-5B-CSA-07 (0.5'-1.0 8 7/24/13 1445 SOIL CCL-5B-CSA-08 6,5-10 8 7/24/13 1510 Soll 106-5B-65A-09 Soil Sampler(s): Please Print & Sign > Shipment Method: Required Turnaround Time: Results Due Date: Other JASON CABILA STD 10 Wk Days FEDEX 5 Wk Days 2 Wk Days 24 Hour Received by: 7/25/13 1300 Relinquished by: QC Package: (Check Box Below) 7/26/13 Cooler Temp. 0930 Level II: Standard OC Logged by (Laboratory): Checked by (Laboratory): Level III: Std OC + Raw Data 2.4 c Level IV: SW846 CLP-Like Preservative Key: 3-H2SO4 5-Na2S2O3 6-NaHSO# 7-Other 8-4 degrees C 9-5035 Other:



Chain of Custody Form

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Page \mathcal{A} of \mathcal{B}

coc id:01209

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York, PA +1 717 505 5280

		ALS	S Project M	anager:		i.					Order #			\mathcal{O}_{I}		13
Customer Information		Project Inf										quest	for An	alysis		
Purchase Order	Project Na	me COLLIS	SOIL	SAMPLE	}	****	CRA 1				cA)				_	
Work Order	Project Numl	ber				ВМ	ERCU	RY (-	7471	B)						
Company Name BB+6	Bill To Compa	iny B	B+€			С										
Send Report To JASON CABRA .	Invoice A	tin. JAS	EN CARSI	M.	A0	D										
235 EAST MINSTREET						Е									_	
Address	Addre		\ .			F										
City/State/Zip UCRTHVILLE, MI 48167	City/State/	Zip	JA.	ME		G										
Phone 248 489 9636	Pho	me				н										
Fax 248 489 9646	1	ax			\											
e-Mail Address icabrae blande.com	e-Mail Addr	ess				J										
No. Sample Description	Date	Time	Matrix	Pres.	#Bottles	Α	В	С	D	E	F	G	Н	J	J	Hold
10/ COL-5B-CSA-15(0,5'-1,0')	7/24/13	1750	5012	8	1			X					.,			
COL-5B-CSA-15(0.5'-1.01) -DUP		1750	SOIL	.8	1	X		X								
COL-5B-CSA-15/031-1.0') HS/MSI		1750	Sc12	8	1	Z	\times									
(OL-5B-CSA-14(0,5'-1,0')	7/24/13	1530	SOIL	8	1	$\langle \rangle$	\geq	\ \								
COL-RB-CD	7/24/13	1400	WATER		11.		\times			ļ						
COL-RB-C3	7124/13	1815	WATER	8	!		\times					· .				
7							·				·					
8	, ,															
9.			-	ļ .		ļ .					· ·					
10	lehinma	ent Method:	IPa	nuired Tu	rnaround	Time		<u> </u>	Other _			Re	sults Du	e Date:	3888666	
Sampler(s): Please Print & Sign JASON CHELA Jour Coltail		DEX		STD 10 W		5 Wk	Days		Days .		4 Hour					
Relinquished by: Date: 7/25/13	1300	Received by:	\		я.	No	otes:						:			
Relinquished by: Date:		Received by (Lab	ooratory):	>		c	ooler Ter		Packa				w)			
FCDEX 7/24/13	0930	Checked by (Labo	oratory):					+			Std OC	ird QC C + Rav	y Data	\vdash		
Logged by (Laboratory):	12/20	Mechandy (Lab	oratory).				246	- -				6 CLP-		-'-		
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOh	5-Na2S2O3 6-	NaHSO4 Y-C	Other 8-	4 degrees	C 9-50	35			Otl	er:				٠.		

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Joe Ribar

From:

Jason Cabra <jcabra@bbande.com>

Sent:

Thursday, August 15, 2013 11:22 AM

To:

Joe Ribar Veronica Allen

Cc: Subject:

RE: 13071003 COLLIS Soil Sample

Joe,

Per your earlier request from Veronica Allen, here is the list of background soil samples from the Collis SSW location that will need Arsenic analyses performed.

- " COL-SB-BKGD-01(0.5'-1.0')
- 615) 13071003
- -2 COL-SB-BKGD-02(0.5'-1.0')
- 616)
- ³ COL-SB-BKGD-03(0.5'-1.0')
- (17)
- 4 COL-SB-BKGD-04(0.5'-1.0')
 - (18)
- 5 COL-SB-BKGD-05(0.5'-1.0')
- (19)
- 6 COL-SB-BKGD-06(0.5'-1.0')
- (20) (21)
- COL-SB-BKGD-07(0.5'-1.0')
- 4 COL-SB-BKGD-06(0.5'-1.0')-DUP (21)

All samples were collected on 07/24/2013 and are listed in COC #01208. Please use the standard 5-day turnaround time.

Also, would you please provide this analyses in a separate stand-alone report from previous analyses performed for this sampling event and a separate billing invoice.

If you have any questions, please contact me.

Thanks,

Jason Cabra, CHMM | Civil Engineer

BB&E, LLC | Consulting Engineers & Professionals

235 East Main Street, Suite 107 | Northville, MI 48167

Office 248.489.9636 ext 308 | Cell 248-342-2113 | Fax 248.489.9646

www.bbande.com

From: Veronica Allen

Sent: Wednesday, August 14, 2013 9:10 PM

To: Joe Ribar **Cc:** Jason Cabra

Subject: Re: 13071003 COLLIS Soil Sample

Will do

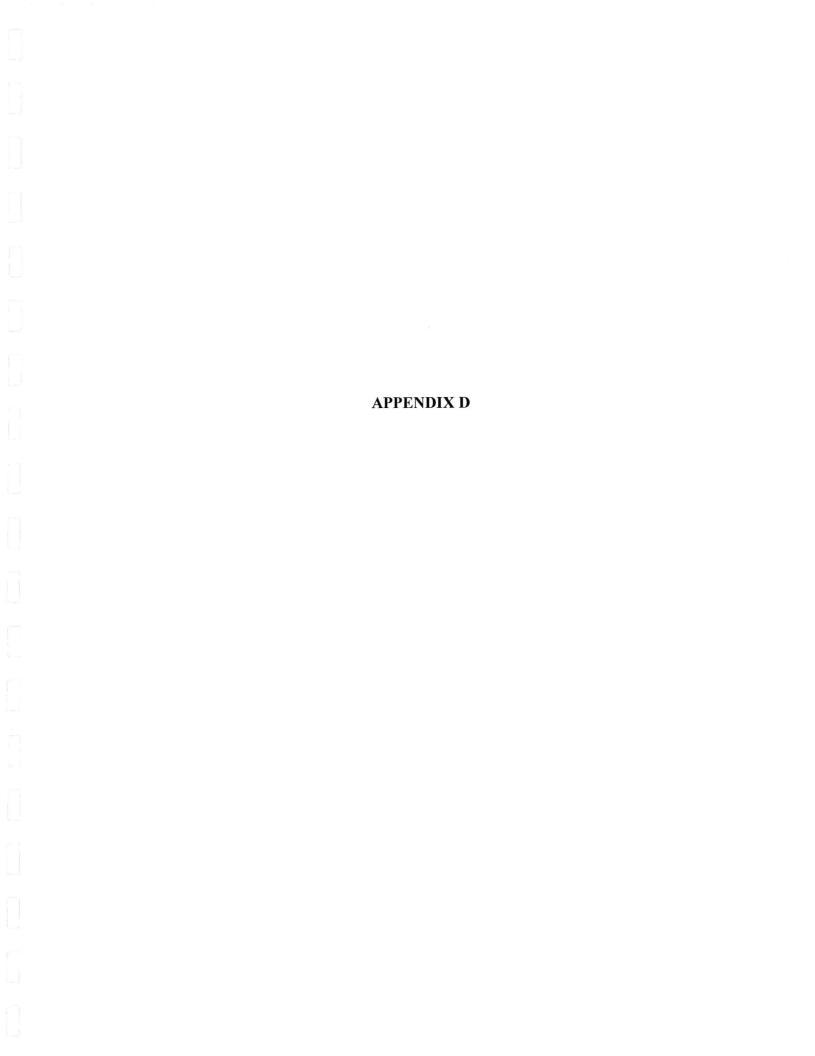
On Aug 14, 2013, at 8:39 PM, "Joe Ribar" < Joe.Ribar@alsglobal.com > wrote:

Sounds good, Veronica. If you can please send me an email with the samples you would like analyzed, I would appreciate it. I just need it as documentation for the file.

Have a good night!

Sample Receipt Checklist

Client Name: B	<u>BE</u>			Date/Time I	Received:	15-Aug-13	14:15	
Work Order: 13	308591			Received b	y:	KRW		
Checklist complete	ed by <u>Keith Wierenga</u>	15	-Aug-13	Reviewed by:	Joseph L eSignature	ibar		15-Aug-13 Date
	Soil ALSHN	ı						ı
Shipping containe	er/cooler in good condition?		Yes	No 🗆	Not Pres	ent 🗸		
Custody seals inta	act on shipping container/cooler	?	Yes	No 🗆	Not Pres	ent 🗸		
Custody seals into	act on sample bottles?		Yes	No 🗆	Not Pres	ent 🗸		
Chain of custody	present?		Yes	No 🗆				
Chain of custody	signed when relinquished and re	eceived?	Yes	No 🗆				
Chain of custody	agrees with sample labels?		Yes	✓ No □				
Samples in prope	r container/bottle?		Yes	No 🗆				
Sample container	rs intact?		Yes	✓ No □				
Sufficient sample	volume for indicated test?		Yes	No 🗌				
All samples receiv	ved within holding time?		Yes	✓ No □				
Container/Temp E	Blank temperature in compliance	e?	Yes	No 🗸				
Sample(s) receive Temperature(s)/T			Yes 4.0 C	No 🗆				
Cooler(s)/Kit(s):								
	e(s) sent to storage:		8/15/201 Yes	3 2:23:21 PM No	No VOA vial	s submitted	✓	
	s have zero headspace?		Yes [No 🗆	N/A ✓			
pH adjusted?	otable upon receipt?		Yes [No	N/A ✓			
pH adjusted by:			-					
Login Notes:	From previous WO#1307100	3. Stored in the wa	alk-in cool	er.				
			===				====	
		5 . 6		Dama	n Contacted:			
Client Contacted	:	Date Contacted:		Perso	n Contacted.			
Contacted By:		Regarding:						
Comments:								
CorrectiveAction	:						SRC	Page 1 of 1



11 - 61 - 16 -	General UCL Statistics								
User Selected Options	1								
From File	WorkSheet.wst								
Full Precision	OFF								
Confidence Coefficient	95%								
nber of Bootstrap Operations	2000			·····					
enic Background (mg/kg)									
		General Stat	istics	•••,•••••					
Numbe	er of Valid Observations	7	Number of Distinct Observations	7					
Pau S	tatistics		Log-transformed Statistics	.,,					
raw 5	Minimum	2	Minimum of Log Data	0.69					
	Maximum	5.2	Maximum of Log Data	1.649					
	Mean	3.6	Mean of log Data	1.22					
The state of the s	Geometric Mean	3.414	SD of log Data	0.36					
	Median	3.5							
	SD	1.215							
	Std. Error of Mean	0.459							
V	Coefficient of Variation	0.338							
	Skewness	0.071		**********					
	R	elevant UCL S	talistics						
Normal Dist	R Inflution Test	elevant UCL S	Statistics Lognormal Distribution Test						
		elevant UCL S	A. 12-27, WA	0.923					
Sh	ribution Test apiro Wilk Test Statistic		Lognormal Distribution Test						
Sh Sh	tribution Test	0.929	Lognormal Distribution Test Shapiro Wilk Test Statistic						
Sh Sha Data appear Normal a	tribution Test apiro Wilk Test Statistic apiro Wilk Critical Value	0.929	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value						
Sh Sha Data appear Normal a	tribution Test apiro Wilk Test Statistic apiro Wilk Critical Value t 5% Significance Level	0.929	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level	0.803					
Sh Sha Data appear Normal at Assuming Norm	tribution Test sapiro Wilk Test Statistic apiro Wilk Critical Value t 5% Significance Level mal Distribution	0.929	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level Assuming Lognormal Distribution	5.08					
Sh Sha Data appear Normal al Assuming Normal 95% UCLs (Adju	tribution Test hapiro Wilk Test Statistic hapiro Wilk Critical Value t 5% Significance Level hapiro Milk Critical Value t 5% Significance Level hapiro Milk Critical Value hapiro Wilk Test Statistic	0.929	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level Assuming Lognormal Distribution 95% H-UCL	5.08° 5.75°					
Sh Sha Data appear Normal at Assuming Norm 95% UCLs (Adju	tribution Test sapiro Wilk Test Statistic apiro Wilk Critical Value t 5% Significance Level mal Distribution 95% Student's-t UCL	0.929 0.803 4.492	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level Assuming Lognormal Distribution 95% H-UCL 95% Chebyshev (MVUE) UCL	0.923 0.803 5.083 5.752 6.68 8.503					
Sh Sha Data appear Normal at Assuming Norm 95% UCLs (Adju 95% Adjusted	tribution Test lapiro Wilk Test Statistic lapiro Wilk Critical Value lt 5% Significance Level lt 5% Significance Le	0.929 0.803 4.492 4.369	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level Assuming Lognormal Distribution 95% H-UCL 95% Chebyshev (MVUE) UCL	5.08 5.752 6.68					
Sh Sha Data appear Normal at Assuming Norm 95% UCLs (Adju 95% Adjusted	tribution Test lapiro Wilk Test Statistic lapiro Wilk Critical Value lt 5% Significance Level lemal Distribution 95% Student's-t UCL listed for Skewness) l-CLT UCL (Chen-1995) l-t UCL (Johnson-1978)	0.929 0.803 4.492 4.369	Lognormal Distribution Test Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Data appear Lognormal at 5% Significance Level Assuming Lognormal Distribution 95% H-UCL 95% Chebyshev (MVUE) UCL 97.5% Chebyshev (MVUE) UCL 99% Chebyshev (MVUE) UCL	5.08 5.75 6.68					

			(KISATUA)
MLE of Mean	3.6		
MLE of Standard Deviation	1.524		
nu star	78.15		
Approximate Chi Square Value (.05)	58.78	Nonparametric Statistics	
Adjusted Level of Significance	0.0158	95% CLT UCL	4.355
Adjusted Chi Square Value	53.74	95% Jackknife UCL	4.492
		95% Standard Bootstrap UCL	4.292
Anderson-Darling Test Statistic	0.314	95% Bootstrap-t UCL	4.567
Anderson-Darling 5% Critical Value	0.709	95% Hall's Bootstrap UCL	4.644
Kolmogorov-Smirnov Test Statistic	0.188	95% Percentile Bootstrap UCL	4.286
Kolmogorov-Smirnov 5% Critical Value	0.312	95% BCA Bootstrap UCL	4.314
Data appear Gamma Distributed at 5% Significance		95% Chebyshev(Mean, Sd) UCL	5.602
Data appear Ganina Distributed at 5 % significant		97.5% Chebyshev(Mean, Sd) UCL	6.468
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.17
95% Approximate Gamma UCL (Use when n >= 40)	4.786		
95% Adjusted Gamma UCL (Use when n < 40)	5.235		
Potential UCL to Use	· · · · · · · · · · · · · · · · · · ·	Use 95% Student's-t UCL	4.492
Total data data			***************************************



January 27, 2014

SENT VIA FEDEX

Mr. Kevin D. Snowden, Project Manager U.S. Environmental Protection Agency 11201 Renner Blvd. Lenexa, Kansas 66219

Subject:

Final – Resource Conservation and Recovery Act Soil Sampling Summary Report

(Docket No. RCRA-07-2012-0014)

Dear Mr. Snowden,

BB&E, L.L.C. is pleased to submit one hard copy and one electronic copy (on CD) of the *Final Resource Conservation and Recovery Act Soil Sampling Summary* Report, per your request.

If you have any questions concerning this document, or any other issues regarding this project, please call me at (248) 489-9636, Extension 309.

Sincerely,

Jim Colmer, P.E.

AWMD / WEMM

JAN 3 0 2014

RECEIVED

cc:

Mr. Brian Calhoun - transmittal letter

Ms. Andrea Stone – 1 hardcopy and 1 electronic copy (on CD)



235 E. Main St, Suite 107 Northville, MI 48167 248.489.9636 Final Resourc Conservation and Recovery Act Soil Sampling Summary Report January 2014 CD-ROM

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